SIEMENS

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CMS X-Tools

Change Log

English

Release 2014-11

Safety Guidelines

This document contains notices which you should observe to ensure your own personal safety as well as to avoid property damage. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring to property damage only have no safety alert symbol

Danger

Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

Warning

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

Caution

Used with the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Notice

Used without the safety alert symbol indicates a potential situation which, if not avoided, may result in an undesirable result or state.

When several danger levels apply, the notices of the highest level (lower number) are always displayed. If a notice refers to personal damages with the safety alert symbol, then another notice may be added warning of property damage.

Qualified Personnel

The device/system may only be set up and operated in conjunction with this documentation. Only qualified personnel should be allowed to install and work on the equipment. Qualified persons are defined as persons who are authorized to commission, to earth, and to tag circuits, equipment and systems in accordance with established safety practices and standards.

Intended Use

Please note the following:

Warning

This device and its components may only be used for the applications described in the catalog or technical description, and only in connection with devices or components from other manufacturers approved or recommended by Siemens. This product can only function correctly and safely if it is transported, stored, set up and installed correctly, and operated and maintained as recommended.

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Disclaimer of Liability

We have checked the contents of this document for agreement with the hardware and software described. Since deviations cannot be precluded entirely, we cannot guarantee full agreement. However, the data in the manual are reviewed regularly, and any necessary corrections will be included in subsequent editions. Suggestions for improvement are welcomed.

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Siemens AG 2014
Technical data subject to change

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1 Preface

1.1 Purpose of this Document

This document contains the change log for the software

- CMS X-Tools

of CMS product line.

In order to learn about the usage and functionality of CMS ***X-Tools***, the following documentation is available:

- CMS X-Tools - User Manual - 01 - Introduction
  - provides an introduction into the basic functionalities of CMS ***X-Tools***
- CMS X-Tools - User Manual - 02 - Master Data System
  - provides detailed information about the functionality which is provided by the **Master Data System**
- CMS X-Tools - User Manual - 03 - Main Management System
  - provides detailed information about the functionality which is provided by the **Main Management System**
- CMS X-Tools - User Manual - 04 - Device Management System
  - provides detailed information about the functionality which is provided by the **Device Management System**
- CMS X-Tools - User Manual - 05 - Monitoring System
  - provides detailed information about the functionality which is provided by the **Monitoring System**
- CMS X-Tools - User Manual - 06 - Analyzing System
  - provides detailed information about the functionality which is provided by the **Analyzing System**
- CMS X-Tools - User Manual - 07 - Storage System
  - provides detailed information about the functionality which is provided by the **Storage System**
- CMS X-Tools - Release Notes
  - provides additional information about the released version of CMS ***X-Tools***

1.2 Validity of this Document

This document is valid for the following software:

- CMS X-Tools Pro V 04.02
- CMS X-Tools ODV V 04.02

During the following pages, these software packages will be referred to by the term ***X-Tools***. The change log bases on the most powerful edition (“Professional”), less powerful editions may not contain all of the listed features.

1.3 Audience

This document is intended for personnel involved in the commissioning and using of the software:

- ***X-Tools***

2 Change Log

2.1 X-Tools V 03.00 -> X-Tools V 03.01

The following changes have been introduced in ***X-Tools*** V 03.01:

FEATURE (Data Name Prefix for Analyzing Models)
The Analyzing Model Editor now supports data name prefixes for input and output data. Similar to the data name prefixes within Device Profiles, the data name prefixes within Analyzing Models can be used in order to increase the reusability of Analyzing Models in case of environments with multiple similar tasks (e.g. ten times the same calculation but for ten different input and output signals).

FEATURE (Data Name Prefix for Analyzing Scripts)
The Analyzing Script Editor now supports data name prefixes for input and output data. Similar to the data name prefixes within Device Profiles, the data name prefixes within Analyzing Scripts can be used in order to increase the reusability of Analyzing Scripts in case of environments with multiple similar tasks (e.g. ten times the same calculation but for ten different input and output signals).

FEATURE (Editing and Input Focus Change via the Keyboard)
The keyboard can be used in order to access buttons and to move the input focus from one control to another control. Nearly all operations can be performed now without using the mouse.

FEATURE (Data Export to the DIAdem .dat Format)
The Advanced Export dialogs of the MDX and Offline Data Loader now allow to export offline data also to the DIAdem .dat format.

FEATURE (Advanced Time Base Settings for Offline Data)
Via the Chart Options dialog of Monitoring Charts and via the Monitoring View Parameters table of the Monitoring View Editor, also the time base setting “Use the local time of the Offline Data” is available now. In case this time base is being chosen, all loaded offline data is being displayed with the time base which it had when it was being stored.

FEATURE (Advanced System Log Viewer)
After a new System Log File has been opened, the entries now are being read and displayed from the end to the beginning. In addition, the Next Entries and Previous Entries buttons of the System Log Viewer can be used in order to scroll to the next or previous entries.

FEATURE (Direct Editing of Input Arguments within the Analyzing Model Editor)
In order to change the value of an input argument of an Analyzing Function within the Analyzing Model Editor, the according input argument can be selected via the mouse and the <F2> key can be pressed afterwards in order to start editing of the value directly. Like before, a double-click onto the input argument opens the Analyzing Function Properties dialog where all input arguments can be edited within a table.

FEATURE (Visible Sequence-IDs within Error Messages of Analyzing Models)
In case an error message is being created by an Analyzing Model, the sequence ID of the causing Analyzing Function is added as part of the message. In several cases also the causing arguments can be highlighted directly within the Analyzing Model.

FEATURE (Execution IDs for the System Log Entries of all Configuration File Types)
At a start of each configuration file (Main Profile, Interface Profile, Device Profile, Monitoring View, Analyzing Model, Analyzing Script or Storage Profile), a unique execution ID is being assigned. This execution ID can be used within the System Log Viewer in order to display only the messages which belong to a certain execution of a certain configuration file.

FEATURE (Source Machine Information for all System Log Entries)
The information about the source machine is now being added to each system log entry. In case of environments with multiple X-Tools Servers and/or in cases where the X-Tools Client and the X-Tools Server are running at different machines, the information about the source machine identifies the source of each system log entry.

FEATURE (Additional Minimum Time Format for Analyzing Models and Analyzing Scripts)
The Offline Time Configuration table of Analyzing Model Editors and Analyzing Script Editors now provides the additional minimum time format “Use Start Time of the Analyzing Model/Analyzing Script”. In case this time format is being chosen, the first calculated timestamp matches the start time of the Analyzing Model/Analyzing Script exactly.

FEATURE (Reset Functionality for IEEE1394 Devices)
All IEEE1394 devices can be reset by ***X-Tools*** now. Under certain circumstances it was possible before that an IEEE1394 device stopped to respond. In order to enable this reset functionality, the according device must be of product version A2 or later.

FEATURE (Improved loading of very big Offline Data Files)
In previous versions it was not possible to load offline data files which were bigger than the available amount of RAM, even in case a data reduction was configured for the loading. Now ***X-Tools*** can load also very big offline data files in case the amount of data after the data reduction fits into the available RAM.

FEATURE (Copying of the Contents of the Cursor Tables from Monitoring Charts)
The contents of the Cursor Tables of Monitoring Charts can be selected and copied to the clipboard of Windows now. From there, these contents can be copied into any other compatible Windows application.

FEATURE (Enabling/Disabling of multiple Rows within Interface Profile Editors)
The additional context menu items Enable and Disable are available within the Connections tables of all Interface Profile Editors now. In combination with multiple selections of rows these context menu items can be used in order to enable/disable the entries of multiple rows at once.

FEATURE (Additional Analyzing Function GenerateAlarmBand())
The additional Analyzing Function GenerateAlarmBand() generates an 1-dimensional buffer with information about the boundaries of an alarm band. This information can be used to monitor a spectrum with the ANF MonitorAlarmSpectrum().

FEATURE (Additional Analyzing Function MonitorAlarmSpectrum())
The additional Analyzing Function MonitorAlarmSpectrum() calculates alarm spectrums (with the information generated by GenerateAlarmBand()) and monitors an input spectrum.

FEATURE (Additional Analyzing Function GetBufferMember())
The additional Analyzing Function GetBufferMember() returns the specified value from an 1-dimensional input buffer.

FEATURE (Additional Analyzing Function IIRLowPassFilterButterworth())
The additional Analyzing Function IIRLowPassFilterButterworth() calculates an up to 20-th order IIR Butterworth filter.

FEATURE (Additional Analyzing Function IIRHighPassFilterButterworth())
The additional Analyzing Function IIRHighPassFilterButterworth() calculates an up to 20-th order IIR Butterworth filter.

FEATURE (Additional Analyzing Function IIRBandStopFilterButterworth())
The additional Analyzing Function IIRBandStopFilterButterworth() calculates an up to 10-th order IIR Butterworth filter.

FEATURE (Additional Analyzing Function AverageSpectrum())
The additional Analyzing Function AverageSpectrum() calculates an average spectrum.

FEATURE (IEEE1394 Gap Count Monitoring)
X-Tools checks the gap count of all present IEEE1394 devices now and re-initializes the IEEE1394 bus in case it detects that not all of the present IEEE1394 devices share the same gap count. Inconsistent gap counts at the IEEE1394 bus can cause data loss and interrupted data transmission from IEEE1394 devices in combination with IEEE1394b host adapters.

FEATURE (Configuration of the Target Name of Configuration Files via Drag&Drop)
The Target Name of each configuration file which is opened within its editor now can be switched between the local file system of the client and any of the currently connected servers by simply dragging of the “Main” item (for the local file system of the client) or of any “Server” item (for the according server) from the explorer tree of the current system.

FEATURE (Additional Column “1 / (T2-T1)” for the Cursor Table of the MTC yt T001)
The cursor table of the Monitoring Chart for y = f(t) visualizations has received an additional column which displays the value of “1 / (T2-T1)”, which matches the frequency of the time period between the two cursors.

CHANGE (Loading of Offline Data)
The former “Storage Data Editor” has been renamed to “Offline Data Loader”. Loading of offline data via the Offline Data Loader now can be started directly via the context menus of the MDX and of the STX.

CHANGE (Stop Time of offline Data Files)
In case of continuous storage, the stop time of an offline data file now matches the start time of its following offline data file. In previous versions, the stop time of an offline data file was 1ns before the start time of its following offline data file.

CHANGE (Check of the Trigger Data Types)
When a Storage Profile is being started and it is configured to trigger by some data, the data type of the input data for the trigger (either binary or numerical) now must match the data type which is configured within the Storage Profile. In case the configured and the current data type do not match, the Storage Profile is being suspended.

CHANGE (Suspending in Case of missing Trigger Data)
In case the input data for a start or stop trigger of a Storage Profile is missing, the Storage Profile now is being suspended until the input data for the trigger becomes available again.

CHANGE (Spaces at the End of Data Names within Device Profile Editors)
In previous versions it was possible to enter data names with spaces at the end within several Device Profile Editors. Now all spaces at the end of data names are being removed automatically after editing has been finished.

CHANGE (Messages within the Analyzing Model Editor)
Several messages and icons of messages which occur during the editing within the Analyzing Model Editor have been improved.

CHANGE (System Log Message in Case of a Detected Time Jump from a Device)
In case X-Tools detect a jump in the incoming timestamps of a device, an according log entry is being written. In order to not overload the System Log in case of an erroneous device, this message is not being sent more often than once per minute.

CHANGE (Plausibility Check for the Time Correction Factors of PROFIBUS DP and Serial Port Devices)
The plausibility check for the time correction factors which already was present for IEEE1394 and socket devices has been added for PROFIBUS DP and Serial Port devices, too.

CHANGE (Preceding and following Probes in Offline Data Files)
In case there is a value at exactly the start time of an offline data file, no preceding probe is inserted into the offline data file any more. In addition, in case there is a value at exactly the stop time of an offline data file, no following probe is inserted into the offline data file any more.

CHANGE (Default Target for opening of System Log Files)
In case “All” is being chosen as Source Name within the System Log Settings table of the System Log Viewer and the “Open” button is being pressed, the default Target Name is being set to “Local Client” now.

CHANGE (Dropping of Analyzing Models/Analyzing Scripts into non-empty Editors)
In case an Analyzing Model/Analyzing Script is being dropped into a non-empty Analyzing Model Editor/Analyzing Script Editor, these editors now behave identical to the other editors of X-Tools and allow to choose whether the previous file shall be saved or overwritten or whether a new editor shall be opened for the dropped Analyzing Model/Analyzing Script.

CHANGE (Messages within Device Profile Editors)
Several messages and icons of messages which occur during the editing of the Message Channel Contents table have been improved.

CHANGE (Communication to the ION SIMATIC TDC T001)
Old versions of the ION SIMATIC TDC T001 (versions older than V 03.01) did not support the full command set which is being used by X-Tools for the communication with the device. X-Tools does not support these older versions of the ION SIMATIC TDC T001 any more.

CHANGE (System Log Entries for connecting/Disconnecting of Socket Devices)
The system log entries which appear during the start/stop of an Interface Profile for the socket interface as well as the system log entries which appear whenever a socket device gets connected/disconnected have been improved.

CHANGE (Meaning of the Storage Profile Triggers for Intervals)
The definition of the start conditions for the start and stop triggers of Storage Profiles which base on intervals (join/leave/inside/outside) have been improved and the implementation has been slightly modified accordingly.

CHANGE (Default Buffer Size for Analyzing Functions which produce extended Data Types)
The default size of the data buffer of data of extended data types (e.g. a spectrum) has been changed from 1.000 to 50 values in order to use less RAM in the default configuration.

BUGFIX (Start Time of relative offline Data from Analyzing Models and Analyzing Scripts)
In previous versions the start time of relative offline data which was output by Analyzing Models and Analyzing Scripts was close to the specified Minimum Time Value but not exactly the specified Minimum Time Value (there was a small jitter which was depending to the start time of the Analyzing Model/Analyzing Script). Now the start time of such data always matches the specified Minimum Time Value exactly.

BUGFIX (Time Zone Information within Offline Data Files)
In previous versions the time zone information (bias and description) was not stored by offline data files. Now each created offline data file contains detailed information about the time zone of the computer at which it was stored. The stored time zone information can be used by e.g. the MTS in order to display each loaded offline data with its original time base settings.

BUGFIX (Wrong Taking over of the Normalization within Device Profile Editors)
In case a Device Profile was opened within a Device Profile already and another Device Profile with different normalization settings was dropped into the same Device Profile Editor, the normalization of the first Device Profile was taken over by the dropped one under certain circumstances.

BUGFIX (Low Memory Conditions could disable the System Log permanently)
In case the hard disk of the System Log File became full, the X-Tools Server stopped to send system log entries to the X-Tools Client. New log entries also did not appear at the X-Tools Client after the low memory condition of the hard disk had been solved.

BUGFIX (Resizing of Columns within the System Log Viewer)
In case the System Log Settings table was updating it was not possible to resize the present columns in parallel.

BUGFIX (Improper Handling of the Access Right for new File Locations)
New file locations became visible to all users even in case they did not have the access right “New File Locations”.

BUGFIX (Wrong Title Bar of empty User Account Editors)
In case an empty User Accounts Editor was opened its title bar contained a wrong entry.

BUGFIX (Too many Events in loaded Offline Data)
There was a possibility that the same event was added multiple times to an offline data during its loading from the disk.

BUGFIX (Too many Messages in case too many Windows shall be opened)
The maximal number of dialogs within a workspace is 31. In case e.g. 50 Analyzing Models were dragged into the empty Analyzing Workspace at once, there were (50 - 31 =) 19 message boxes that no more windows could be opened.

BUGFIX (Wrong initial File Location for new Analyzing Models/Analyzing Scripts)
In case a new Analyzing Model/Analyzing Script was created via the according context menu item from an Analyzing Model Files or Analyzing Script Files branch, the initial File Location of the new Analyzing Model/Analyzing Script was not being set to the File Location from which the context menu has been called (instead, the default File Location was used as initial File Location).

BUGFIX (Editing of Bit Arrays within Device Profile Editors)
The operations “copy”, “cut” and “remove” did not work properly for bit arrays within the Device Profile Data table of Device Profile Editors.

BUGFIX (Enabling of empty Rows within the Loading Profile Editor)
Within the Loading Profile Editor it was possible to check the Enabled entry for empty rows.

BUGFIX (Suspending of Storage Profiles in case the specified Trigger Data is not available)
Storage Profiles did not suspend in case they were triggered by data and the specified data became unavailable.

BUGFIX (Time Wrap of ION SIMATIC S7-300 T001, ION SIMATIC S7-400 T001, ION SIMATIC S7-400 T002 and ION SIMOTION T001 Devices)
The time wrap value of the above devices has been changed from 4.294.967.296 to 3.600.000.000µs.

BUGFIX (Unwanted Change of the Format of Date and Time Cells)
After editing of the date or time of start or stop triggers within the Storage Profile Editor, the format of the displayed date or time has been changed automatically to the formatting which was specified via the Control Panel of Windows. Now, X-Tools always uses its own format for these dates and times.

BUGFIX (Ignored Number of Digits after the Decimal Separator within the Loading Profile Editor)
The Time Interval cell of the Included Data Table of the Loading Profile Editor did not take over the number of digits after the decimal separator which has been specified via the Global Options Editor.

BUGFIX (No Possibility to change the Password of the Administrator)
The password for the built-in user account “Administrator” could not be modified by the user.

BUGFIX (Forgotten Mark Types within Monitoring Charts)
Under rare conditions the Data Style dialog of Monitoring Charts has reset a previously configured mark type.

BUGFIX (X-Tools did not start in combination with some Time Zone Settings)
In case the used operating system was configured to a time zone which does not know daylight saving time, X-Tools was not able to startup at all.

BUGFIX (Unwanted enabling of empty Rows within the Loading Profile Editor)
The Loading Profile Editor allowed to enable the last, empty row within its Included Data and Excluded Data tables.

BUGFIX (Ignored Difference of Time Domains within Interface Profiles for the Socket Interface)
Assume an Interface Profile for a socket interface which has established the connection to a socket device. In this situation another Interface Profile can be started for the same socket interface directly (without stopping of the previous Interface Profile before). At the moment of the start of the second Interface Profile, X-Tools checks whether any of the currently connected socket devices is also present within the new Interface Profile. In case yes, the socket device keeps connected without any interruption. The according check did not consider that the same device may have different time domain settings within these two Interface Profile, thus it was possible that the socket device was not reconnected although its different time domain would have required a reconnect.

BUGFIX (Improper highlighting of negative Gradients of the Normalization)
Although negative values for the gradient (m) of the normalization are allowed and could be stored, all Device Profile Editors highlighted negative gradients with red color.

BUGFIX (Background Color of Monitoring Charts is not restored)
After opening of a Monitoring View, the previously configured background color of the present Monitoring Charts was not restored. Instead, the default color was present within the Monitoring Charts after each opening of their Monitoring View.

BUGFIX (Hang in Case the current Time Zone is being changed during the Termination)
In case the X-Tools Server was terminated via its context menu and the time zone of the operating system has been change during the termination, there was a possibility to hang X-Tools.

BUGFIX (Too many Log Entries about too many Log Entries)
There was a protection against log entry floods which does not allow a configuration file to put more than 10.000 entries into the System Log during one execution. In case 10.000 log entries have been reached, there was one additional log entry to the System Log for each additional log entry from the configuration file. Now it is possible to put up to 250 entries into the System Log during 5 seconds.

BUGFIX (Double Info Node for Storage Process Modules within the Storage System Explorer)
In case there were multiple Storage Process Modules present, the Storage System Explorer could display more than one “Info” node for each of them.

BUGFIX (Missing Context Menu Items for Offline Data Files within the Offline Data Loader)
The “Expand” and “Collapse” context menu items for Offline Data files were not displayed until they had been expanded at least once.

BUGFIX (Possible Crash during the Termination of the X-Tools in case of manual Window Modes)
In case the window mode is “manual” and more than one window is being opened at once there was a possibility to receive a crash during the termination of ***X-Tools***.

BUGFIX (Possible Crash during the Export of Data of extended Data Types (e.g. a Spectrum, …))
Exporting of data of extended data types via the Master Data System Explorer resulted in a crash of the X-Tools Server and in a following hang of the ***X-Tools Client***.

BUGFIX (Ignored decimal Places in case of advanced Export of extended Data Types)
The setting of the Decimal Precision parameter of the Advanced Export dialog of the Master Data System Explorer was ignored during the export of extended data types.

BUGFIX (Bad Routing within the Analyzing Model Editor)
For Analyzing Functions which had a number of outputs which was equal to or grater than the number of inputs the link routing algorithm tried to start the link beneath the block instead of right the block side because the beneath route was shorter. Now all Analyzing Functions are a bit higher so that some additional space is available at the bottom of each Analyzing Function.

BUGFIX (Execution ID Filter of the System Log Viewer did not show the first matching Log Entry)
In case the System Log Viewer was configured to show only the log entries of a certain execution ID, the first entry from the System Log file which would have matched the specified filter settings was not being shown.

BUGFIX (Not matching Stop Times for the Offline Data Files of a suspended Storage Profile)
In case a Storage Profile has been suspended, its offline data files received slightly different stop times.

BUGFIX (Wrong Code Position within Error Log Entries from Analyzing Scripts)
The code positions within log entries which reported an error were correct only for the Analyzing Function which had been called first and where wrong for all other Analyzing Functions.

2.2 X-Tools V 03.01 -> X-Tools V 03.02

The following changes have been introduced in ***X-Tools*** V 03.02:

FEATURE (Default Values within the "Data Style" Dialog of Monitoring Charts)
The "Data Style" dialog of Monitoring Charts provides a possibility to choose "Default" for any of the settings there.

FEATURE (Aligned Width of the Curve Area of Monitoring Charts)
In case of a Monitoring View Editor which contains multiple Monitoring Charts, the width of all Curve Areas of all Monitoring Charts can be aligned.

FEATURE (Synchronized Cursors within Monitoring Charts)
In case a Monitoring View contains multiple Monitoring Charts, the cursors can be synchronized among all Monitoring Charts now.

FEATURE (Configurable Size of calculated Offline Data)
The maximum size of data created by Output Analyzing Functions was fixed to 50 MBytes. Now, the maximum size is configurable.

FEATURE (Advanced automatic arrange Possibilities for Windows)
The context menus of ***X-Tools Client*** windows provide additional possibilities for automatic arrange: “Tile horizontally”, “Tile vertically” and “Tile automatically”.

FEATURE (Hiding of Configuration Areas)
Via context menu it is possible to show or hide the Configuration Area of the following editors: MVE Standard T001, AME Standard T001 and ASE Standard T001.

FEATURE (Support of SIPLUS CMS4000 ION SIMATIC S7 PN)
Support of the new software I/O-Node SIPLUS CMS4000 ION SIMATIC S7 PN.

FEATURE (Simultaneous changing of the Storage Mode within Storage Profiles)
Within the SPE Binary T001 it is possible now to change the “Storage Mode” of multiple Data simultaneously.

FEATURE (Simultaneous changing of the Loading Mode within Loading Profiles)
Within the LPE Binary T001 it is possible now to change the “Loading Mode” of multiple Data simultaneously.

FEATURE (“Apply to selected” and “Apply to all” for all Record/Storage/Loading Mode Columns)
The “Apply to selected” and “Apply to all” context menu entries now are available for the Record/Storage/Loading Mode columns of all Device Profile Editors, Storage Profile Editors, and Loading Profile Editors.

FEATURE (Adding of Device Versions to the System Log)
Whenever a device is being attached to the ***X-Tools Server***, the version of the device is added to the system log.

FEATURE (<F5> can be used in order to refresh the Contents of Trees)
In case a tree has the input focus and <F5> is being pressed, the information about the contents of the tree are being re-read.

FEATURE (The Address Book of ION SIMATIC TDC T001 can be stored to any Location)
In case a tree has the input focus and <F5> is being pressed, the information about the contents of the tree are being re-read.

FEATURE (Support of SIPLUS CMS4000 IFN ANALOGINPUT)
Support for the new hardware interface node IFN ANALOGINPUT.

FEATURE (Support of SIPLUS CMS4000 IFN VIB-ACC)
Support for the new hardware interface node IFN VIB-ACC.

FEATURE (No Message for unchanged Configuration Files)
In case a new Configuration File is being initialized by an editor and the editor is being closed afterwards without any modification to the Configuration File, there is no more message which asks whether to save the Configuration File.

FEATURE (Automatic Takeover of changed Configuration Files)
The X-Tools Server can be configured to automatically take over a Configuration File which has been changed at the disk. In case this setting is active, saving of a Configuration File (either via X-Tools or via the Windows

Explorer) automatically restarts its execution on base of the new contents of the Configuration File in case the Configuration File was started already.

FEATURE (Identification of the X-Tools Server also via its Computer Name)
In addition to an IP address, also a computer name can be specified within Main Profiles now in order to identify the computer and X-Tools Server to which the X-Tools Client shall connect.

FEATURE (Exit Confirmation)
The X-Tools Client can be configured to request an exit confirmation before it is being closed.

FEATURE (Reporting of low Ring Buffer Sizes)
In case the ring buffer for the values of an online data is too small an according warning is being added to the system log.

FEATURE (Switchable Unit of relative Timestamps)
Within the cursor table of the MTC yt T001, the unit of the timestamps of offline data with relative timestamps now can be switched between text, ns, µs, ms, seconds, minutes, hours and days.

FEATURE (Email Notifications for various System Events)
Via the Analyzing System it is possible now to send an email in case of an occurring event like the appearing of a certain log message, reaching of some hard disk threshold, changes in the state of a Configuration File or changes in the state of a device.

FEATURE (Safe Boot Mode)
In case the safe boot mode is being enabled, the X-Tools Server can log all starts of Configuration Files. In case of severe errors the X-Tools Server does not automatically start the affected Configuration File during its next startup. Together with the X-Tools Service which can restart the X-Tools Server in case of e.g. a crash or a hang, the safe boot mode is able to restore the X-Tools Server in most cases.

FEATURE (Additional State “Triggering” for Storage Profiles)
In addition to the common states of all Configuration Files (e.g. stopped, started, suspended, paused, …) Storage Profiles now also point out via their icon when they are in status “Triggering”.

FEATURE (3D Visualization of 2-dimensional Buffers)
The new MTC ynm T001 can be used in order to visualize the data of 2-dimensional buffers in the 3-dimensional space. The visualization can be moved and rotated freely and provides different ways of interpolation, like bars, color gradients and surface.

FEATURE (Firmware Update for Interface Nodes)
The firmware of Interface Nodes can be updated via X-Tools and IEEE1394.

FEATURE (Sequence Control for Measurement and Analysis Tasks)
The powerful mechanism of sequential Analyzing Scripts allows to start and stop other Configuration Files (Interface Profiles, Device Profiles, Analyzing Models, Analyzing Scripts and Storage Profiles) automatically. It can be used in order to automate massive any measurement and analysis tasks.

FEATURE (Start of a Monitoring View via the Command Line)
Storage Profiles now also can be configured to store offline data to the disk.

FEATURE (Storage Profiles for offline Data)
Storage Profiles now also can be configured to store offline data to the disk. Therefore, also the SPE Binary T001 accepts dropping of offline data now.

FEATURE (Smart Updating of the Information within Trees)
The X-Tools Client now does not read information about Configuration Files before their containing directory is being expanded within the explorer trees. In case of a lot and/or of big Configuration Files which are distributed via sub-directories the expanding of sub-directories becomes much faster with this kind of updating.

FEATURE (Selection of Input Arguments within the AME Standard T001 via the Cursor Keys)
<Cursor up> and <Cursor down> now can be used in case to move the input arguments of an Analyzing Function up and down.

FEATURE (Additional Access to the Parameters of Analyzing Models/Scripts for Analyzing Functions)
Analyzing Functions are now able also in sequential mode to access the parameters of Analyzing Models and Analyzing Scripts, e.g. the output data class and the operating mode.

FEATURE (Re-Initialization of the X-Tools Server via the X-Tools Client)
Via the context menu of a currently connected X-Tools Server within the MMS Explorer, the X-Tools Server can be re-initialized now. This functionality is useful especially in scenarios where the X-Tools Client and the X-Tools Server are running at different computers and in case a global option, which requires a restart of the X-Tools Server, has been changed.

FEATURE (Adding of Notifications from IEEE1394 I/O-Nodes to the System Log)
IEEE1394 I/O-Nodes can send notifications which contain information about some internal status, e.g. a detected error during the data transmission. In case such a notification is being received it is added to the System Log of the X-Tools Server now.

FEATURE (Additional Format for the Data Type “Spectrum”)
The data type “Spectrum” is able to handle order spectrums from now on.

FEATURE (Visualization of the Unit at the x-Axis of the MTC yn T001)
In case a frequency spectrum is being visualized, the unit is displayed as [Hz] now. Contrary, in case an order spectrum is being visualized, the unit is displayed as [1] now.

FEATURE (Detection of invalid PROFIBUS DP Packets by the ION PROFIBUS DP Spy T001)
In case an invalid PROFIBUS DP packet is being delivered by the ION PROFIBUS DP Spy T001, the packet is ignored and its data is not added to the internal buffers of X-Tools. A PROFIBUS DP packet is identified as invalid in case its start delimiters do not match, its length fields do not match, its end delimiter is wrong or its frame check sum is wrong.

FEATURE (Advanced support for the <Open Context Menu> Key from the Keyboard)
The <Open Context Menu> key from the keyboard can be used within all trees now in order to open the context menu of the currently selected tree item.

FEATURE (Double-Click onto an Input Argument within the AME Standard T001 starts editing)
A double-click onto an input argument of an Analyzing Function within the AME Standard T001 now behaves like the <F2> key for the currently selected input argument and starts to edit the value of the input argument.

FEATURE (Additional Analyzing Function “InputAntiAliasingFilter”)
The additional Analyzing Function InputAntiAliasingFilter() reads anti aliasing filtered simple online or offline data from the system.

FEATURE (Additional Analyzing Function RainflowCounting())
The additional Analyzing Function RainflowCounting() calculates the rainflow counting algorithm.

FEATURE (Additional Analyzing Function TimeAtLevelCounter())
The additional Analyzing Function TimeAtLevelCounter() calculates the time at level counting algorithm.

FEATURE (Additional Analyzing Function Exit())
The additional Analyzing Function Exit() is able to stop execution of current time-sliced program on current heartbeat.

FEATURE (Additional Analyzing Function IsDataPresent())
The additional Analyzing Function IsDataPresent() points out whether the specified online or offline data is currently present

FEATURE (Additional Analyzing Function RemoveAllDataFrom())
The additional Analyzing Function RemoveAllDataFrom() removes all of the offline data which has been created by the specified Analyzing Model or Analyzing Script.

FEATURE (Additional Analyzing Function Start())
The additional Analyzing Function Start() starts the execution of the specified configuration file.

FEATURE (Additional Analyzing Function Stop())
The additional Analyzing Function Stop() stops the execution of the specified configuration file.

FEATURE (Additional Analyzing Function WaitForConfigurationFile())
The additional Analyzing Function WaitForConfigurationFile() blocks the execution of a sequential Analyzing Script until the specified configuration file reaches one of the specified states.

FEATURE (Additional Analyzing Function WaitForStartEventbyData())
The additional Analyzing Function WaitForStartEventbyData() blocks the execution of a sequential Analyzing Script until the specified time event has been reached.

FEATURE (Additional Analyzing Function IIRBandPassFilterChebyshev1())
The additional Analyzing Function IIRBandPassFilterChebyshev1() calculates an up to 10-th order IIR Chebyshev1 filter.

FEATURE (Additional Analyzing Function IIRBandStopFilterChebyshev1())
The additional Analyzing Function IIRBandStopFilterChebyshev1() calculates an up to 10-th order IIR Chebyshev1 filter.

FEATURE (Additional Analyzing Function IIRHighPassFilterChebyshev1())
The additional Analyzing Function IIRHighPassFilterChebyshev1() calculates an up to 20-th order IIR Chebyshev1 filter.

FEATURE (Additional Analyzing Function IIRLowPassFilterChebyshev1())
The additional Analyzing Function IIRLowPassFilterChebyshev1() calculates an up to 20-th order IIR Chebyshev1 filter.

FEATURE (Additional Analyzing Function IIRBandPassFilterChebyshev2())
The additional Analyzing Function IIRBandPassFilterChebyshev2() calculates an up to 10-th order IIR Chebyshev2 filter.

FEATURE (Additional Analyzing Function IIRBandStopFilterChebyshev2())
The additional Analyzing Function IIRBandStopFilterChebyshev2() calculates an up to 10-th order IIR Chebyshev2 filter.

FEATURE (Additional Analyzing Function IIRHighPassFilterChebyshev2())
The additional Analyzing Function IIRHighPassFilterChebyshev2() calculates an up to 20-th order IIR Chebyshev2 filter.

FEATURE (Additional Analyzing Function IIRLowPassFilterChebyshev2())
The additional Analyzing Function IIRLowPassFilterChebyshev2() calculates an up to 20-th order IIR Chebyshev2 filter.

FEATURE (Additional Analyzing Function Impulser())
The additional Analyzing Function Impulser() generates an impulse signal with a chosen shape.

FEATURE (Additional Analyzing Function Random())
The additional Analyzing Function Random() generates a random signal within defined range.

FEATURE (Additional Analyzing Function InputBuffer2D())
The additional Analyzing Function InputBuffer2D() reads 2-dimensional online or offline buffer data from the system.

FEATURE (Additional Analyzing Function InputOrderResampling())
The additional Analyzing Function InputOrderResampling() re-samples simple online or offline data from the system to use it for order analysis (e.g. order FFT).

FEATURE (Additional Analyzing Function OutputBuffer2D())
The additional Analyzing Function OutputBuffer2D() writes 2-dimensional online or offline buffer data to the system.

FEATURE (Additional Analyzing Function Cepstrum())
The additional Analyzing Function Cepstrum() calculate the cepstrum of the online or offline input buffer.

FEATURE (Additional Analyzing Function EnvelopeHilbert())
The additional Analyzing Function EnvelopeHilbert() calculates the envelope of the online or offline input signals by using the Hilbert transformation.

FEATURE (Additional Analyzing Function SelectiveRootMeanSquare())
The additional Analyzing Function SelectiveRootMeanSquare() calculates the root mean square for the specified frequency range of the online or offline input spectrum.

FEATURE (Additional Analyzing Function TotalHarmonicDistortion())
The additional Analyzing Function TotalHarmonicDistortion() calculates the total harmonic distortion of the online or offline input signals.

FEATURE (Additional Analyzing Function Crest())
The additional Analyzing Function Crest() calculates the crest factor of the online or offline input signals.

FEATURE (Additional Analyzing Function GetPeriod())
The additional Analyzing Function GetPeriod() calculates the period of the online or offline input signals.

FEATURE (Additional Analyzing Function Histogram2D())
The additional Analyzing Function Histogram2D() creates the 2-dimensional histogram of the online or offline input signals.

FEATURE (Additional Analyzing Function Kurtosis())
The additional Analyzing Function Kurtosis() calculates the kurtosis of the online or offline input signals, based on the Fischer's definition of the kurtosis coefficient.

FEATURE (Additional Analyzing Function Range())
The additional Analyzing Function Range() calculates the maximal extent of the online or offline input signals.

FEATURE (Additional Analyzing Function Skewness())
The additional Analyzing Function Skewness() calculates the skewness of the online or offline input signals, based on the Fischer's definition of the skewness coefficient.

FEATURE (Additional Analyzing Function StandardDeviation())
The additional Analyzing Function StandardDeviation() calculates the sample standard deviation of the online or offline input signals.

FEATURE (Additional Analyzing Function StandardDeviationN())
The additional Analyzing Function StandardDeviationN() calculates the standard deviation of the online or offline input signals.

FEATURE (Additional Analyzing Function Variance())
The additional Analyzing Function Variance() calculates the empirical variance of the online or offline input signals.

FEATURE (Additional Analyzing Function VarianceN())
The additional Analyzing Function VarianceN() calculates the variance of the online or offline input signals.

FEATURE (Additional Analyzing Function FormatString())
The additional Analyzing Function FormatString() produces text-strings in prepared format, which can be parameterized that certain fields in format string are replaced by parameter string.

FEATURE (Additional Analyzing Function GetTime())
The additional Analyzing Function GetTime() returns the amount of seconds which have elapsed since 1970-01-01 for the GMT time zone.

FEATURE (Additional Analyzing Function MonitorConfigurationFile())
The additional Analyzing Function MonitorConfigurationFile() monitors the state of the specified configuration file.

FEATURE (Additional Analyzing Function MonitorDevice())
The additional Analyzing Function MonitorDevice() monitors state of connected devices.

FEATURE (Additional Analyzing Function MonitorDisk())
The additional Analyzing Function MonitorDisk() monitors changes in the available space of a disk.

FEATURE (Additional Analyzing Function MonitorSystemLog())
The additional Analyzing Function MonitorSystemLog() monitors contents of **XTS** system log.

FEATURE (Additional Analyzing Function SendEmail())
The additional Analyzing Function SendEmail() sends textual messages via email to specified recipient.

FEATURE (Additional Analyzing Function Resample())
The additional Analyzing Function Resample() creates a 1-dimensional buffer with re-sampled online or offline input data or values.

CHANGE (One Device Profile Editor for all S7 Software I/O-Nodes)
All supported S7 software I/O-Nodes can be configured with the same Device Profile Editor DPE ION SIMATIC S7. This editor replaces the following editors: DPE ION SIMATIC S7-300 T001, DPE ION SIMATIC S7-400 T001 and DPE ION SIMATIC S7-400 T002.

CHANGE (Disabling of the Data Format Selection for Bit Arrays)
For data which is defined as bit signal within a Device Profile, the data format can not be switched between big/little Endian any more.

CHANGE (Disabling of the Record Mode “Changes and Interval”)
The Record Mode “Changes and Interval” has been disabled within Device Profiles.

CHANGE (Connector Names of the ION SIMATIC TDC T001)
The names of the connectors of the currently downloading address book of ION SIMATIC TDC T001 devices are not being displayed any more.

CHANGE (Time Domain of IEEE1394 Devices)
The name of the time domain which is being used by IEEE1394 devices has been changed from “Time Domain 01” to “IEEE1394”.

CHANGE (Default Buffer Size for Device Profiles of SIMATIC/SIMOTION Devices)
In case a new Device Profile is being created for ION SIMATIC S7-300 T001, ION SIMATIC S7-400 T001, ION SIMATIC S7 PN or ION SIMOTION T001 devices, the default size of the message channel is being set to the maximal possible size of each device now.

CHANGE (Minimal allowed Cycle Time for Analyzing Models/Analyzing Scripts)
The minimal allowed cycle time for Analyzing Models and Analyzing Scripts has been changed to 5 µs (200 kHz). The granularity of the cycle time also has been changed to 1 ns steps.

CHANGE (Supported COM Ports)
For the connection to serial port devices, only the COM ports 1 … 9 were supported so far. Now, also the COM ports above 9 can be used by the ***X-Tools Server***.

CHANGE (Additional Status Information for ION PROFIBUS DP T001 Devices)
Additional status information is output now at each stop of the ION PROFIBUS DP T001 device. The additional status information provides more details about the exact reason of the current stop.

CHANGE (Initial Buffer Size of new Device Profiles for Software I/O-Nodes)
In case a new Device Profile for a software I/O-Node is being created and the initial buffer size can not be read from the target device, the initial buffer size is being set to the maximal allowed buffer size.

CHANGE (Allowed Range within the "Manual scale y-Axis" Dialog)
The allowed range for the scaling of y-axis has been changed in order to fit the different precisions and dependencies to exponents better.

CHANGE (Only absolute Values for Frequencies)
The cursor table of the MTC yt T001 displays the calculated frequencies always as absolute value now, also in case T2-T1 is a negative value.

CHANGE (Default Width of the Columns of the Cursor Table)
In case the cursor table is being opened, the width of its columns is adjusted automatically so that all contents of all columns are fully visible.

CHANGE (Higher Granularity of the Timestamps from IEEE1394 Devices)
The timestamps of all IEEE1394 devices were rounded to full µs so far. Now, also ns between 0 … 999 can be part of these timestamps.

CHANGE (Additional Version Information for Devices with multiple Firmware Versions)
In case of devices with multiple firmware versions, both firmware versions are being written to the System Log at the moment of the connect.

CHANGE (Message Box for the MTS in case of zooming when the Ring Buffer is not available any more)
During the visualization of data it always can happen that the data source disappears (e.g. the source device is being detached). At this moment, also the ring buffer of the data is being removed. In case the user pauses the visualization of some data after its ring buffer has been removed and zooms into this data, a message box pops up and informs the user about the non-availability of the detailed information.

CHANGE (Moving to the latest Redistributable Files)
The latest version of the redistributable files from Microsoft have been added to the release version.

CHANGE (Handling of empty Analyzing Models/Scripts)
In case an empty Analyzing Model or an empty Analyzing Script is being started, it suspends immediately and does not resume until its file at the disk is being updated.

CHANGE (Introduction of the License Management)
The different editions of X-Tools (e.g. Standard or Professional) now can be accessed by using of different licenses.

CHANGE (Separation into basic and advanced Analyzing Functions)
The Analyzing Functions which are being delivered together with X-Tools are separated into basic and advanced Analyzing Functions now, where the according license is needed in order to be able to access and use the advanced Analyzing Functions.

CHANGE (Improved Handling of the Address Book of ION SIMATIC TDC T001 Devices)
The address book is being saved only in case it is mandatory now and it can be saved to and opened from any location (e.g. also to/from the local client). In addition, downloading of the address book does not block the user interface of the X-Tools Client any more.

CHANGE (Advanced .csv Export)
The format of exported .csv files has been improved so that it is more common among the different data formats (simple data types, 1-dimensional buffers, 2-dimensional buffers and spectrums) and descriptive now.

CHANGE (Further Improvements for more Commonness with Explorer Trees)
Not all operations which can be performed on explorer trees were handled absolutely identical by all of the present explorer trees. For example, there were differences during the copy/cut/paste of tree items.

CHANGE (Disabling of different Data Formats for Bit Arrays)
Within Device Profile Editors, the data format of bit arrays can not be switched between Big Endian (MSB first) and Little Endian (LSB first) any more.

CHANGE (Improved direct Editing within the Analyzing Model Editor)
In case the value of an argument is being edited directly within the Analyzing Model Editor via the <F2> key, <Cursor left> and <Cursor right> do not end the editing any more.

CHANGE (Enabling of GenWF() also for action-based Operating Modes)
The Analyzing Function GenWF() now can be used in action-based operating modes also.

CHANGE (Adding of unified Version Information to all Configuration Files)
All Configuration Files now contain the version of X-Tools which has been used when the Configuration File was saved the last time.

CHANGE (Unified Icons within the "Select File" Dialog)
The "Select File" dialog now uses the same icons for locations, directories and Configuration Files as all of the explorer trees.

CHANGE (Visualization of empty Units within Monitoring Charts)
Within the legend and within the cursor tables of all Monitoring Charts, an entry like "[-]" is being displayed for all data which does not provide a unit.

CHANGE (Hiding of the "Connection Type" Column within the MPE Standard T001)
The option "UDP" has been removed from the "Connection Type" column of the MPE Standard T001. In addition, this columns is hidden by default now.

CHANGE (Improved Performance of the PROFIBUS DP T001 Interface)
The performance of the data transmission from the PROFIBUS DP T001 interface to the ring buffers of online data has been improved significantly.

CHANGE (Less Resource Usage during loading of Offline Data Files)
The loading of offline data files now only uses the CPU in case no other task is using it. Thus, loading of offline data files may need a little bit longer now but does not disturb any other task of X-Tools any more.

CHANGE (Removing of the "Auto-scroll Cursor Table" option within the "Chart Options" Dialog)
The "Auto-scroll Cursor Table" option has been removed. Now, the cursor table always is being scrolled automatically so that the currently clicked entry from the legend becomes visible within the cursor table.

CHANGE (The Analyzing Function Random() replaces the built-in Random() of Analyzing Scripts)
The previously provided internal Random() functionality of Analyzing Scripts is not supported any more and is being replaced by the Analyzing Function Random() now.

CHANGE (Modified Width of Bars within the MTC yn T001)
The visualized width of the displayed bars now can be chosen between thin (1/3 of the width for the bar, 2/3 for the empty space), moderate (2/3 of the width for the bar, 1/3 for the empty space) and thick (full width for the bar, no empty space).

CHANGE (Renaming of the Plug-In for the X-Tools Client)
The plug-in for the X-Tools Client at the side of the X-Tools Server has been renamed from "DME DPM Client T001.dll" to "DME DPM X-Tools Client T001.dll".

CHANGE (Reporting of invalid Indexes from ION ARCNET Spy T001 Devices)
In case an invalid index is being received from an ION ARCNET Spy T001, an according entry is being added to the system log now.

CHANGE (Protection of currently used Configuration Files)
Via the X-Tools Client it is not possible any more to rename, delete or move a Configuration File which is not in status "stopped" at the moment.

CHANGE (Removing of the "Mode" Parameter from the ANF OutTCP())
The "Mode" parameter has been removed from the ANF OutTCP().

CHANGE (Improved Granularity of the Data Supervision)
The data supervision performs the check of the accordingly configured Device Profiles each 100 ms now (instead of 1000 ms).

CHANGE (Minimal allowed Data Supervision Time)
The minimal allowed data supervision time has been changed to 500 ms (instead of 1 ms).

CHANGE (Review of the Log Entries about Device Profiles)
The log messages which are being used for the starting, stopping and execution of Device Profiles have been reviewed.

CHANGE (Increased Send Buffer Size for the Data Connection)
The size of the buffer which is being used for sending of data from the X-Tools Server to a client has been increased to 512 kByte.

CHANGE (Copy and move of items within the MDS Explorer)
In case data is being copied within the MDS Explorer from one category to another category, the default operation is a “move” now. The <Ctrl> key can be pressed in order to perform a “copy” instead of the “move”.

CHANGE (No saving Confirmation for unchanged Monitoring Views)
In case a Monitoring View has been created and is being closed without a relevant change (e.g. a change within one of the contained tables or adding of some data), there is not saving confirmation being displayed to the user any more.

CHANGE (Improved Behavior of the “Previous Entries” and “Next Entries” Buttons of the System Log Viewer)
Now, the “Previous Entries” button is enabled whenever there is at least one entry available before the currently displayed oldest entry. In addition, the “Next Entries” button is enabled whenever there is at least one entry available after the currently displayed newest entry.

CHANGE (Basic Protection of started Configuration Files)
In case a Configuration File is started, the X-Tools Client does not allow to delete, rename or move its file within the explorer tree.

CHANGE (Default rendering Mode)
The default rendering mode within Monitoring Charts has been changed from “Fast” to “Minimal and Maximal Value”.

CHANGE (Behavior of paused Device Profiles)
In case a Device Profile is paused, it now continues to perform all operations except adding of values into its ring buffers. Thus, log entries about errors within the received data now also can be created for paused Device Profiles.

CHANGE (Start Index of the Analyzing Function GetBffrM())
The index of the Analyzing Function GetBffrM() now starts with 0 instead of 1.

CHANGE (Integral() for sequential Analyzing Scripts)
The Analyzing Function Integral() now also can be used in Analyzing Scripts which are configured to an “Operating Mode” of “Sequential.

BUGFIX (Suspending of Storage Profiles in case of an unavailable Storage Location)
In case the Storage Location of a Storage Profile was unavailable or disappeared, the Storage Profile did not suspend.

BUGFIX (CPU usage of the X-Tools Server at the Moment of File Splitting)
There were several cases possible where the CPU usage was rising up to 100% for several seconds at the moment of the file splitting.

BUGFIX (Memory Leak in case of File Splitting)
The state of visibility of Toolbar within Monitoring Views is stored.

BUGFIX (Memory Allocation while Storing Data)
Memory has been allocated wrongly in case the input data of a Storage Profile was not available.

BUGFIX (Possible Crash when running a Storage Profile with “Interval only”)
There was a possibility for a crash in case a Storage Profile contained a Storage Mode of “Interval only”.

BUGFIX (Too many stored Data after the Stop Trigger Event)
Under certain conditions it was possible that there were some data values being put into the offline data file which had timestamps after the stop event.

BUGFIX (STS works in two Directories after it was suspended)
Under certain conditions it was possible that a single Storage Profile continued to store its data into two different directories simultaneously. This happened sometimes after the Storage Profile was suspended because of low memory conditions.

BUGFIX (Crash when loading of offline Data)
A crash could occur during the loading of offline data in case the source file was stored with a storage mode of “Interval only” and with an interval of bigger than 1 second.

BUGFIX (Too little Performance for the Storing to Disk)
There was a wrong sleeping configured for the thread which is storing the data of Storage Profiles to the disk. As a result, the writing was too slow (because it was idle most time) compared to the amount of data buffers which were prepared for writing. This too little performance also was noticeable through constantly increasing memory usage of the X-Tools Server.

BUGFIX (Unwanted automatic Stop of Storages Profiles during the Startup of the X-Tools Server)
In case of very low memory conditions at the startup of the X-Tools Server it was possible that the STS has stopped a to-be-started Configuration File automatically (instead of suspending it).

BUGFIX (Possibility for storing of wrong Values)
There was a possibility that X-Tools has stored single wrong values into its offline data files. This happened in rare cases with online data that has been produced by Analyzing Models/Scripts.

BUGFIX (CPU usage of the X-Tools Client while Starting a Device Profile)
While starting a Device Profile the CPU usage of the ***X-Tools Client*** is noticeable reduced.

BUGFIX (Storing the State of Visibility of the Toolbar and of the Title Bar)
The state of visibility of the toolbars and title bars within Monitoring Views is stored.

BUGFIX (Constant connect and disconnect of CTN WatchGuard T001 Devices)
In case of CTN WatchGuard T001 devices without any started Device Profiles, these devices have been continuously connected and disconnected because the life check did not work properly.

BUGFIX (Attach/detach of CTN WatchGuard T001 Devices did not produce Entries to the System Log)
Whenever a CTN WatchGuard T001 was connected to or disconnected from the X-Tools Server, the according message has not been added to the System Log.

BUGFIX (Disappearing CTN WatchGuard T001 in Combination with Operating Mode “Watchdog”)
Devices of type CTN WatchGuard T001 disappeared after a short time of operation in case the chosen operating mode was “Watchdog”.

BUGFIX (Missing Probes within the Data Streaming of CTN WatchGuard T001 Devices)
There were values missing in the data streaming from CTN WatchGuard T001 devices.

BUGFIX (Missing attach/detach Messages for the CTN WatchGuard T001)
There were no attach/detach messages for CTN WatchGuard T001 devices in some cases when the device disappeared/reappeared.

BUGFIX (Calculations with twice the same Signal with Analyzing Scripts)
The same signal could not be used for multiple arguments of a single Analyzing Function.

BUGFIX (Device Profiles and Record Mode “Interval only”)
The “Record Mode” “Interval only” did not work properly under certain conditions.

BUGFIX (Loading Profiles and Loading Mode “Changes and Interval”)
The “Loading Mode” “Changes and Interval” did not work properly under certain conditions.

BUGFIX (Storage Profiles and Storage Mode “Changes and Interval”)
The “Storage Mode” “Changes and Interval” did not work properly under certain conditions.

BUGFIX (Advanced Export using Export Mode “Changes and Interval”)
The “Export Mode” “Changes and Interval” did not work properly under certain conditions.

BUGFIX (Operation of hidden Menu Bar in Editors)
Clicking onto menu bars which were set to “hidden” did not result in the according operation in some cases.

BUGFIX (Invalid Check of the Header Mask)
Within Device Profiles of ION ARCNET Spy T001, ION PROFIBUS DP Spy T001 and ION PROFIBUS DP T001 devices, the check of the header mask could fail in rare cases because a wrong internal offset was being used.

BUGFIX (Possible Hang during the Startup of Configuration Files)
In very rare cases there was a possibility for a hung during the startup of a Configuration File.

BUGFIX (Disabled “Previous” and “Next” Buttons within the System Log Viewer)
Under certain conditions the “Previous” and “Next” buttons of the System Log Viewer have not been enabled as it should be.

BUGFIX (Default Values for Bit Arrays in Device Profiles)
The names for the default values of bit arrays within Device Profiles were generated with an index starting from 0 instead of starting from 1.

BUGFIX (<F2> stops to work within the AME Standard T001)
Under certain conditions it was possible that <F2> stopped to enter the edit mode of input arguments. Pressing of <F2> did not have any effects in such cases.

BUGFIX (Output Analyzing Function using Precision “Integer8")
Setting of the Analyzing Function property “Precision” to “Integer8” for output functions did not work properly.

BUGFIX (Speedup of the Compression between X-Tools Client and X-Tools Server)
In case the ***X-Tools Client*** and the ***X-Tools Server*** were started up simultaneously, a lot of CPU time has been wasted unnecessarily with the compression of their communication.

BUGFIX (Immortal Message Box in case of Missing Storage Profile Editor and Loading Profile Editor)
In case a Storage Profile or Loading Profile is being dropped when there is no Storage Profile Editor or Loading Profile Editor available, an according message box popped up. Closing of this message box automatically opened the same message box again.

BUGFIX (Reading of the Address Book of an ION SIMATIC TDC T001)
In case the ***X-Tools Client*** was connected to two ***X-Tools Servers*** and both of these ***X-Tools Server*** had an ION SIMATIC TDC T001 with identical name attached, the address book could be loaded only from one of them.

BUGFIX (Creating of Locations via the Offline Data Loader)
In case the connection to the target ***X-Tools Server*** broke down unusually while the Offline Data Loader was opened, the Offline Data Loader was unable to create new offline data locations also after the reconnect of the ***X-Tools Server*** in some cases.

BUGFIX (Missing Events within offline Data Files)
Some of the events of signals (like source present start/stop, …) have not been stored to the offline data files.

BUGFIX (Possible Hang during the Termination of the X-Tools Server)
Under rare conditions it was possible to run into a hang of the ***X-Tools Server*** because of a dead lock within file monitors during their termination.

BUGFIX (Missing Events within ANS-generated online Data)
The ANS did not add the events which indicate the end of the data availability.

BUGFIX (Overlapping offline Data could prevent the ANS to perform its Calculations)
In rare cases the STS could create overlapping offline data when loading this data from files. The ANS could not process such offline data - now, the STS does not create overlapping offline data any more.

BUGFIX (Too small Performance of “Action based and cyclic” Calculations)
The performance of “Action based and cyclic” calculations within the ANS has been improved significantly.

BUGFIX (Improved Handling of possibly corrupted Data)
In rare situations it may happen that the system is unable to properly add additional information to a data, e.g. because of very low CPU time or because of very low available memory. Now the affected data is being marked in such cases and it is not being used by the rest of the system any more.

BUGFIX (Possible Crash in Combination with Data of 0 Values)
Under certain conditions it was possible to run into a crash within the Analyzing System in case an input data of an Analyzing Model/Analyzing Script was not available at the start of the Analyzing Model/Script and a data of matching name but with 0 values was loaded afterwards.

BUGFIX (Crash of the AME Standard T001 during copy)
Under certain conditions the AME Standard T001 could crash during a copy operation via the context menu or via the keyboard.

BUGFIX (Constantly increasing Memory Usage of the X-Tools Server)
In case a lot of device simulations have been used in order to create simulated data and in case some of the data definitions within the Device Profiles were configured to an “Interval only” record mode, the X-Tools Server seemed to be too slow to process all data and its memory usage was rising all the time.

BUGFIX (Unwanted stop of an Analyzing Model/Analyzing Script)
In case of “Action based and cyclic” operating modes, there was a possibility that the Analyzing Model/Analyzing Script has stopped automatically although it must suspend.

BUGFIX (Crash when copying of Chart Options)
A crash could occur in case the chart options were being copied from one MTC to another MTC.

BUGFIX (Bit Arrays of more than 8 Bits Size could not be imported to a Device Profile properly)
The size of bit arrays after the import always was truncated to 8 bits. In case longer bit arrays were to be imported, their values were lost.

BUGFIX (Bit Arrays could not be deleted after the Import)
After importing of bit arrays into a Device Profile, the according data definitions could not be deleted in some cases.

BUGFIX (Possible failed resume of a Device Profile right after the attach of its IEEE1394 Target Device)
Under certain conditions the system was unable to resume a Device Profile right after the attach of its IEEE1394 target device. In such a case, the resume always took place a few seconds later.

BUGFIX (Missing Events in case of Suspend/Resume of Device Profiles)
The data available start/stop events were not added to the data of Device Profiles in case the Device Profile was suspended/resumed. As a result, event-using functionalities did not behave correctly in such situations (e.g. Analyzing Models/Scripts did not suspend/resume properly when their input data from Device Profiles disappeared or re-appeared).

BUGFIX (Very fast suspend/resume of Analyzing Models/Scripts could freeze the X-Tools Client)
In case there was an Analyzing Model/Script which suspended and resumed very frequently the X-Tools Client could be frozen. After a while in this condition even a crash was possible.

BUGFIX (Slow opening of a lot of Data from a remote Server within the Monitoring System)
Opening of data from a remote server which is connected via a low bandwidth connection froze the X-Tools Client for the amount of time which was needed in order receive all relevant information from the server. In extreme cases even the connection between X-Tools Client and X-Tools Server broke down.

BUGFIX (Analyzing Models/Scripts did not suspend in some Cases)
In case of “action based and once” operating modes, Analyzing Models/Scripts did not suspend in case their input data disappeared.

BUGFIX (Wrong Check of the Input of high Values within the “Manual scale t-Axis” Dialog)
In case a high value was input to the “Manual scale t-Axis” dialog, the according message box was not precise enough. In addition, there were situations where the “Manual scale t-Axis” dialog did not accept any new inputs as correct inputs after it has received a too high input once.

BUGFIX (Importing of Normalization Parameters failed sometimes)
After exporting of a Device Profile, the import failed under certain conditions because the import of the normalization parameters was incorrect.

BUGFIX (Improper Handling of offline Data Files which contain only one Probe)
X-Tools was unable to properly store and load offline Data Files which contained only one probe in the case that this one-and-only probe was before the start time of the offline data file.

BUGFIX (Frozen X-Tools Client while opening of Monitoring Views)
X-Tools was frozen for the amount of time which was needed in order to collect all of the information for a newly opened Monitoring View. Now all parts of the Monitoring View are being displayed gradually and in parallel to the reception of all information.

BUGFIX (X-Tools Clients constantly can not connect to an X-Tools Server)
There were different situations where an X-Tools Server needed several seconds for the processing of an incoming connection from an X-Tools Client. In case this processing took too long for the X-Tools Client it broke the connection and retried to connect. This lead to an X-Tools Server which was not accessible any more for any clients because it constantly was processing old connections without a chance to handle new ones.

BUGFIX (Possible Crash when detaching of IEEE1394 Devices)
In rare cases there was a chance to end up with a crash in case a currently data streaming IEEE1394 device was detached.

BUGFIX (Possible Crash when Closing of an X-Tools Client)
In case multiple X-Tools Clients were closed simultaneously there was a possibility that one of them crashed.

BUGFIX (No Visualization of Data in case of low Access Rights)
In case the “Visualization of additional Data” access right of a user was set to “Do not allow visualizing of additional Data”, there was a possible that this user also did not see any data from preconfigured Monitoring Views.

BUGFIX (Some Orders of appending of Data caused improperly loaded offline Data)
Some orders of appending of offline data files could case improperly loaded offline data - in these improperly loaded offline data, some parts from the original offline data files could be missing.

BUGFIX (Crash during the export of very big offline Data Files)
After the export of big offline data files (resulting files of a few 100 MByte) there was a possibility to receive a crash.

BUGFIX (Wrong Dates within the Tool Tip of Monitoring Charts)
Under rate conditions it was possible to receive wrong dates within the tool tips of Monitoring Charts.

BUGFIX (Wrong Timestamps within the Data from CTN WatchGuard T001 Devices)
In case the Device Profile of a CTN WatchGuard T001 device was configured to output binary data, some timestamps of the incoming data were shifted in time wrongly.

BUGFIX (Support for the Mouse Wheel at the t-axis of the MTC yt T001)
The mouse wheel did not work at the t-axis of the MTC yt T001.

BUGFIX (Outdated Information about attached CTN WatchGuard T001 Devices)
Basic information like the device name or its version was read only at the moment of the first connect. Thus, in case one device was detached and another devices was attached afterwards it could happen that still the information from the previously attached device was used by X-Tools.

BUGFIX (Possible Crash during the storing of Data)
Storage Profiles with start and stop triggers could crash in rare conditions at the moment when a trigger was added or removed.

BUGFIX (Not symmetric Output of the GenWF() Analyzing Function)
In case of rectangular output functions, the GenWF() Analyzing Function did not produce a symmetric output in rare case. This issue occurred sometimes when the specified frequency was an exact multiple of the cycle time.

BUGFIX (LNK LED of IEEE1394 Devices is not being turned on)
In rare cases it was possible that X-Tools has established the connection to an IEEE1394 device without turning its LNK LED on. In such a case, the IEEE1394 device was working properly but its LNK LED did not indicate any activity.

BUGFIX (Crash during the renaming of a Device)
In case the user started to rename a device and this device was detached afterwards, a crash could occur when the user wanted to finish the renaming.

BUGFIX (Improper Handling of Time Resets)
In case multiple devices have shared the same time domain and one of these devices has detected a problem with the time synchronization, the other devices did not process the following time reset properly. As a result, the time synchronization between the affected devices could be lost.

BUGFIX (Time Errors from the simulated ION ARCNET Spy T001)
The simulation of the ION ARCNET Spy T001 was producing timestamp errors from time to time.

BUGFIX (Never resuming Storage Profile in case of low Memory Conditions)
The calculation of the amount of RAM which is available for the Storage System contained an error which always reported too little available RAM in case of low Memory Conditions. As a result, a once suspended Storage Profile was not able to resume any more.

BUGFIX (Too high CPU usage of suspended Analyzing Models/Scripts)
In several cases it was possible that a suspended Analyzing Model or Analyzing Script needed more CPU performance than a running Analyzing Model/Analyzing Script.

BUGFIX (Possibility of invalid output Data Names within Analyzing Models/Scripts)
Within Analyzing Models and Analyzing Scripts it was possible to specify invalid names for output data. Now Analyzing Models and Analyzing Scripts do not accept data names any more which would not be valid file names.

BUGFIX (Not stored Cycle Time Unit)
Within the AME Standard T001 and within the ASE Standard T001, the configured unit of the cycle time was not stored and restored to default with each opening of the editor.

BUGFIX (High CPU Usage during the Opening of certain Analyzing Models)
In cases of Analyzing Models which contain the same output data names for different output functions, the system could end up in frequent suspend and resume operations which caused a lot of entries to the system log and an increased CPU usage.

BUGFIX (Trees do not remember the User-configured Settings)
Within the AME Standard T001, the ASE Standard T001 and the MVE Standard T001, the user-configured settings of tables were not remembered even in case the global option “Remember Settings of Tables” was configured to “Yes”.

BUGFIX (Disabling of the User Account “Anonymous”)
It was not possible to disable the user account “Anonymous”.

BUGFIX (Not ending editing within Trees even after the Tree has been resized)
In case editing of a tree item had been started and the width of the tree was changed afterwards, the editing did not stop automatically and caused wrong graphical effects.

BUGFIX (Corrected writing of offline Data through the STS)
The STS did not access its to-be-written offline data properly while it was writing it. As a result, another system like the ANS or the MTS could also access the currently written offline data in parallel to the STS, in which case the read information may have been invalid.

BUGFIX (Improved zooming for very small Time Intervals within the MTC yt T001)
The minimal period of time which can be displayed by the MTC yt T001 is 25 ns. In case the zooming rectangle was used and its defined time interval was less than 25 ns, the MTC yt T001 zoomed in y direction only. Now, the time interval at the t-axis is being set to 25 ns in case the zooming rectangle defined a time interval of less than 25 ns.

BUGFIX (Missing Check of the available Memory before the Start of Analyzing Models/Scripts)
Before the start of Analyzing Models and Analyzing Scripts the available physical memory was not checked. As a result it was possible that the ***X-Tools Server*** consumed too much working memory after the Analyzing Model or Analyzing Script had been started.

BUGFIX ("Set to Default" Context Menu within the "Analyzing Function Properties" Dialog)
The "Set to Default" context menu now is available also for record parameters edit boxes and buffer parameters edit boxes.

BUGFIX (Possible Crash in case multiple X-Tools Clients are being started simultaneously)
In case multiple X-Tools Clients were started simultaneously there was a chance to receive a crash of several of the starting X-Tools Clients. In addition, there was also a possibility to end up in a crash of the X-Tools Server under certain conditions.

BUGFIX (Possible Crash in case multiple X-Tools Clients are being closed simultaneously)
In case multiple X-Tools Clients were started from the same directory and closed simultaneously afterwards, there was a chance to receive a crash of several of the closing X-Tools Clients.

BUGFIX (Possible Hang of the X-Tools Client in combination with frequent Outputs to the System Log)
Some Analyzing Models and Analyzing Scripts are able to produce a large number of outputs to the system log. In case the log entries of an Analyzing Model or Analyzing Script were output directly within the AME Standard T001 or ASE Standard T001, a significant slowdown could be observed over a time which also could look like a hang after a while.

BUGFIX (Possibility of too late closing of opened Sockets)
There were several cases in which the sockets of a client <-> server connection were not closed properly after the disconnect. As a result these sockets stayed present within the system and could reduce the amount of available socket resources.

BUGFIX (Possibility of a Deadlock during the closing of the X-Tools Server)
In case multiple X-Tools Clients were connected to one X-Tools Server simultaneously and the X-Tools Server was closed, there was a possibility of a deadlock within the X-Tools Server which prevented it from a clean shutdown.

BUGFIX (Too long shutdown of the X-Tools Client in case of a lot configured target X-Tools Servers)
In case a lot X-Tools Servers were configured within the currently started Main Profile, the shutdown of the X-Tools Client could last several tens of seconds, independently to whether the connections actually could be established or not.

BUGFIX (Too many copied Data Styles)
In case the data styles were copied from one data to another data, the target data got all styles from the source data. Instead, the styles which are "Default" for the source data now stay also "Default" for the target data, thus the copying of data styles can be used in order to selectively copy the styles of interest only.

BUGFIX (Wrong Caption of the "Manual scale y-Axis" Dialog of binary Axes)
The caption of the "Manual scale y-Axis" dialog for binary y-axes has been corrected.

BUGFIX (Missing and wrong Context Menu within the "Advanced Store/Export" Dialogs)
In order to make the context menu of the "Storage Parameters" and "Export Parameters" available, the value had to be edited at least once. In addition, there was an unneeded separator at the end of the context menu of these two cells.

BUGFIX (Bad Handling of invalid Inputs within the "Manual scale y-Axis" Dialog)
There was no warning and no other indication in case the entered minimal value was smaller than the entered maximal value. No, both values are written with red text and an according message is being displayed in case "Apply" or "OK" are being pressed. In case of the "Manual scale t-Axis" dialog there was an according message but the minimum time value and maximum time value texts did not turn to red.

BUGFIX (No Connection to the X-Tools Server in case of too low Values for the "Connection Retries")
In case the "Connection Retries" within the Global Options Editor were set to "1", the X-Tools Client was unable to connect to the X-Tools Server at all.

BUGFIX (Storing of Main Profiles with an invalid Pair of Passwords)
In case two different passwords were specified for a user within a Main Profile, it still was possible to store the Main Profile after the according error message has been acknowledged.

BUGFIX (Storing of the User Accounts with an invalid Pair of Passwords)
In case two different passwords were specified for a user within the User Accounts Editor, it still was possible to store the user accounts.

BUGFIX (Storing of Main Profiles with an invalid Pair of Command and Data Ports)
In case the same value was specified for the command and for the data port within a Main Profile, it still was possible to store the Main Profile and there was no indication to the user.

BUGFIX (Always visible Legend within a Monitoring Chart)
Under certain conditions it was possible to enter a state of the legend where it was impossible to hide it.

BUGFIX (Improper Initialization of the Time Zone of t-Axes after re-opening of a Monitoring View)
The time zone of t-axes was not initialized properly after re-opening of a Monitoring View. As a result, another group of t-axes could be created in case additional data was dragged into the Monitoring View instead of adding this data to the already existing group.

BUGFIX (Possible Crash after multiple Starts of a Device Profile for an ION SIMOTION T001)
Under certain conditions it was possible to end up in a crash in case the Device Profile and parent Interface Profile of an ION SIMOTION T001 was stopped and started multiple times.

BUGFIX (Mismatch in the displayed Data Values between the ODL Binary T001 and the MDS Explorer)
In case of offline data files which contain only one value the MDS Explorer displayed a value of 0 (instead 1) present probes under certain circumstances.

BUGFIX (Possible Hang or Crash when arranging of Windows in automatic Mode)
In very rare cases it was possible to set up a layout of windows which caused a hang or crash of the X-Tools Client.

BUGFIX (Possible Crash in case of extremely fast suspending and resuming of multiple Device Profiles)
In case multiple Device Profiles were constantly suspended and resumed very fast (e.g. within less than a second), there was a possibility to end up in a crash of the X-Tools Server.

BUGFIX (Possible Hang during the Execution of Analyzing Models/Scripts with extreme Memory Load)
In case of Analyzing Models and Analyzing Scripts which consume a very big amount of memory there was a possibility to end up in a hang of X-Tools.

BUGFIX (Possible Crash in Environments with hardware accelerated OpenGL and Remote Desktop)
There were some drivers which produced a crash in case the X-Tools Client was configured to use “OpenGL 1.1 (hardware accelerated)” as graphics library. The crash occurred in case the X-Tools Client was started locally first and via Remote Desktop afterwards. The bugfix detects such situations and avoids the driver to crash.

BUGFIX (The x-Axes of the MTC yn T001 could not be removed)
The context menu item “Remove Axis” did not have any effects for the x-axes of the MTC yn T001.

BUGFIX (Ignored Undo/Redo Buffer Size after re-opening of a Monitoring View)
After re-opening of an existing Monitoring View, the configured undo/redo buffer size was ignored by the Monitoring Chart although it was written correctly into the Chart Options dialog.

BUGFIX (Other Windows can not be opened in case the MTS Explorer is undocked)
In case the MTS Explorer was undocked, it was not possible to open any other window within the MTS Workspace.

BUGFIX (Changed Names of simulated Devices are not applied)
In case there was an Interface Profile for the simulation interface started already and another Interface Profile for the simulation interface is started afterwards, the names of the simulated devices were not updated according to the configuration of the new Interface Profile.

BUGFIX (Automatic Startup of the X-Tools Server may fail in case of Spaces within the Path Name)
In case the path to the executable of the X-Tools Server contained space characters (“ “), the automatic startup which is configurable via the Global Options Editor could fail.

BUGFIX (Possible Hung after multiple Changes of the System Time)
In case multiple changes of the system time occurred within short time (a few seconds), there was a possibility to end up in a hang of the X-Tools Server.

BUGFIX (Possible Disorder when requesting Data from an ION SIMATIC TDC T001)
In case Boolean and non-Boolean values were requested from an ION SIMATIC TDC T001 simultaneously there was a possibility to receive corrupted data because of an disorder in the internal byte assignment.

BUGFIX (Missing Status Update after renaming of Directories)
In case the directory of a start Configuration File (e.g. a Device Profile or an Analyzing Script) has been renamed, the icon of the affected Configuration File was not updated accordingly.

BUGFIX (Unwanted moving of Window Tabs)
There was a possibility that the window manager behaved as if the left mouse button would be pressed above the tabs of tabbed windows even though the left mouse button was not pressed any more. As a result, the window tabs could be moved without the left mouse button being pressed.

BUGFIX (Improper Conversion from Strings to Integer Values within the Analyzing System)
A string like “1234abc” was converted to an integer value of “1234”. No, in case a string like “1234abc” is being provided as input of an argument of type integer, an error message is being created.

BUGFIX (Unwanted Conversion of String Values for Input Arguments which do not support Strings)
Input values of type string where converted to a value even in case the input argument did not list strings as supported data types. Especially in combination with Boolean input arguments this could lead to undetermined results.

BUGFIX (Improved Handling of Characters which are not allowed within the Names of Data)
A string like “1234abc” was converted to an integer value of “1234”. No, in case a string like “1234abc” is being provided as input of an argument of type integer, an error message is being created.

BUGFIX (Wrong Log Entries about Time Errors after detaching and re-attaching of IEEE1394 Devices)
There was a possibility to receive a wrong log entry about a detected time error after detaching and re-attaching of an IEEE1394 device.

BUGFIX (Improper Size of Message Boxes)
On some screen resolutions there was a possibility to receive an improper size for a message box. As a result, the displayed text could be cut.

BUGFIX (Improved Security during the simultaneous Connection of multiple Clients)
In case multiple clients were connecting to one X-Tools Server simultaneously, there was a possibility that the X-Tools Server recognized two sockets from two different clients as one single connection. Such a configuration can not work and produced undetermined results.

BUGFIX (Possible Crash during loading of several 10.000 offline Data Files at once)
There was a possibility to end up in a crash in case huge amounts of offline data (several 10.000 files) were loaded at once.

BUGFIX (No File Splitting in case of the Post Trigger Setting “On with parallel Storage”)
In case the post trigger setting “On with parallel Storage” was configured it was possible to end up in a configuration where no file splitting was performed any more.

BUGFIX (Ignored Reconnect Settings)
The reconnect settings from the Global Options Editor of the X-Tools Client were ignored in case the specified destination port was not reachable. In such a situation, multiple connection attempts could take place each second.

BUGFIX (Possible Data loss during the Communication with UDP Devices)
In case multiple UDP devices (e.g. ION SIMATIC S7 PN, ION SIMOTION T001, …) were streaming data there was a possibility to loose single data packets.

BUGFIX (Possible Crash when appending of offline Data)
There was a possibility to end up in a crash in case some offline data has been appended to already present offline data of matching name but different data type.

2.3 X-Tools V 03.02 -> X-Tools V 03.03

The following changes have been introduced in ***X-Tools*** V 03.03:

FEATURE (Cable Break Detection for the IFN VIB-A)
The IFN VIB-A now is able to send a notification to the X-Tools Server whenever it detects a possible change of the status (OK, cable break or short circuit) of any sensor cable. Within the Device Profile Editor for the IFN VIB-A it can be configured now how the X-Tools Server shall react to such a possible change. Therefore, the new parameter “Automatic Update of the Channel Status” has been added to the DPE IFN VIB-ACC.

FEATURE (Support for Windows Server 2003 as Operating System)
In addition to Windows XP, now also Windows Server 2003 is supported as operating system.

FEATURE (New Monitoring Chart for y=f(x) Visualizations)
The new MTC yx T001 allows to visualize data in form of y=f(x).

FEATURE (User Function Files)
User Function Files can be created like Analyzing Models. After a User Function File has been saved, it appears

as a library like the built-in Analyzing Functions and it can be used by other Analyzing Models and Analyzing Scripts like any of the built-in Analyzing Functions.

FEATURE (User Function Editor)
The User Function Editor can be used for the creation and maintaining of User Function Files like the Analyzing Model Editor can be used for the creation and maintaining of Analyzing Models..

FEATURE (Improved Memory Management)
The available memory of the system is constantly monitored by the X-Tools Server now. In case the available memory becomes too low, the X-Tools Server automatically suspends the least important Configuration Files until the system has enough memory again. As soon as there is enough free memory available, the X-Tools Server automatically starts to resume the most important Configuration Files again.

FEATURE (Configurable Line Width of Cursors)
The width of the lines of the cursors can be configured via the **Chart Styles** dialog now.

FEATURE (Labels for Measurement Cursors)
The measurement cursors within each Monitoring Chart now display their number (“1” or “2”) at the ends of the cursor lines.

FEATURE (Labels for Binary Data within the MTC yt T001)
Within the MTC yt T001, the names of binary data now can be shown directly within the curve area.

FEATURE (Storing of Data Snapshots via Monitoring Charts)
Within its tool bar, each Monitoring Chart provides an additional button which can be used in order store the currently visualized data to the disk.

FEATURE (Progress Dialogs for storing, loading and exporting Operations)
Whenever a storing, loading or exporting operation is in progress, an according dialog is being displayed. The displayed dialog shows the current status of the ongoing operation and also can be used in order to cancel the ongoing operation.

FEATURE (Dialog for the direct Configuration of the Communication Ports of the X-Tools Server)
Via the context menu of the X-Tools Server from the task tray, the **X-Tools Server Connectivity** dialog can be called now. There, the current values of both communication ports can be seen and changed to other values.

FEATURE (Status Dialog for the X-Tools Server)
Via the context menu of the X-Tools Server from the task tray, the **X-Tools Server Status** dialog can be called now. There, the basic information about the currently running Configuration Files is being displayed.

FEATURE (Automatic Assigning of Sequence IDs within the Analyzing Model Editor)
The Analyzing Model Editor now can be used in order to assign the sequence IDs of the contained Analyzing Functions automatically. The manual possibility for the configuration also stays available.

FEATURE (Restoring of Monitoring Views during the Startup of the X-Tools Client)
The new global option “Restore the Monitoring Views from the last Session” can be used in order to configure the X-Tools Client to automatically open the Monitoring Views during its startup which were opened during its last shutdown.

FEATURE (Configurable Email Subject)
The new global option “Email Subject” can be used in order to configure which subject shall be used by X-Tools when it sends a notification via email. In case an Analyzing Function is being used for the sending of emails, a different email subject can be configured there.

FEATURE (Improved dropping of Analyzing Functions into the AME Standard T001)
In case one or multiple Analyzing Functions are being dragged into the AME Standard T001, a rectangle shows the exact position to which the currently dragged function(s) would be dropped. In case the dropping is possible the rectangle is filled with green color, when the dropping is not possible (e.g. because of too little available space) the rectangle is filled with red color. The mouse cursor icon also shows whether dropping is possible at the current position or not. The same method is being used also in case Analyzing Functions are being moved within the Analyzing Model Editor.

FEATURE (Safe overwriting of all Configuration Files)
Whenever a new version of a Configuration File is being written to disk, a safe mechanism is being used so that it is guaranteed that either the previous or the new file will be valid even in case a severe error (e.g. power down) occurs in the moment of the safe operation.

FEATURE (Context Menu of the “Pause” and “Continue” Buttons of Monitoring Charts)
The context menus of the “Pause” and “Continue” buttons of all Monitoring Charts now always contain both the “Pause Visualization” and the “Continue Visualization” entries, no matter whether the visualization is currently paused or not.

FEATURE (Improved System Log Viewer)
The improved System Log Viewer now allows to filter the present log entries and to search for texts within the present log entries. In addition, the scroll bar of the “System Log Entries” table allows to scroll arbitrarily through all log entries of the currently opened log file.

FEATURE (Priority “System” for Log Entries)
The new priority “System” now is being assigned to all log entries which shall not be disengageable, like the initial log entries that contain the version information or the log entries which report the resuming of a Configuration File.

FEATURE (Adding of more detailed System Information to the System Log)
Whenever the ***X-Tools Client*** or the ***X-Tools Server*** are being started, detailed information about the current system is added to the beginning of the log file. In addition, whenever an ***X-Tools Client*** connects to an ***X-Tools Server***, detailed information about the system of the client is added to the log file of the server and detailed information about the system of the server is added to the log file of the client.

FEATURE (Adding of Version Information of the X-Tools Client to the System Log)
During the startup of the ***X-Tools Client***, detailed version information is being written to its system log.

FEATURE (Copying of Data from one Loading Profile Editor to another Loading Profile Editor)
The data from the tables of a Loading Profile Editor now can be copied to the tables of another Loading Profile Editor.

FEATURE (Copying of Data from Loading Profile Editors to Storage Profile Editor and vice versa)
The data from the tables of Loading Profile Editors now can be copied to the data table of Storage Profile Editors. Consequently, the data from the data table of Storage Profile Editors now can be copied to the tables of Loading Profile Editors as well.

FEATURE (Copying of Definitions from one Interface Profile Editor to another Interface Profile Editor)
The definitions from one Interface Profile Editor now can be copied to another Interface Profile Editor of matching type.

FEATURE (Copying of Definitions from one Main Profile Editor to another Main Profile Editor)
The definitions from one Main Profile Editor now can be copied to another Main Profile Editor of matching type.

FEATURE (Drag&Drop of the Categories from the MDS Explorer)
In case a category is dragged from the MDS Explorer into another system, all of the below data are being dropped into the target system now.

FEATURE (Automatic stop of Configuration Files in case their Directory is being renamed or deleted)
In case a directory for Configuration Files is being renamed or deleted, all of the contained Configuration Files are being stopped now.

FEATURE (Automatic stop of Configuration Files in case their Location is being removed or deleted)
In case a location for Configuration Files is being removed or deleted, all of the contained Configuration Files are being stopped now. The startup files are not being changed by this operation, thus all of the Configuration Files which were running at the moment of the remove would be started automatically in case the location would be added again.

FEATURE (Automatic start of Configuration Files in case their Location is being added)
In case a location for Configuration Files is being added, the startup files of the location are being processed and all of the according Configuration Files are being started automatically.

FEATURE (Naming of Sliders)
Within Monitoring Charts, the name of each slider now is displayed at the left side of the slider. The name of a slider is used in order to identify it, e.g. within the “Manual scale Renderer” dialog.

FEATURE (Clearing of the Undo/Redo Buffers of Monitoring Charts)
The current contents of the undo and redo buffers of all Monitoring Charts can be cleared via the context menu of the Undo/Redo buttons now.

FEATURE (Setting of the Undo/Redo Buffer Size of Monitoring Charts)
The size of the undo and redo buffers of Monitoring Charts can be changed via the context menu of the Undo/Redo buttons now, which calls the **Chart Options** dialog in order to change the size of the undo and redo buffers.

FEATURE (Detection of Heap Corruption)
In case a corruption of the heap (memory) of X-Tools is being detected, a dump is being created automatically.

FEATURE (Additional Global Option “General logging Mode”)
The “General logging Mode” can be used in order to configure which entries shall land within the log file and

which ones not. The setting uses the priority of the log entry in order to decide whether it shall land within the log file or not.

FEATURE (Additional Global Option “Storage System logging Mode”)
The “Storage System logging Mode” can be used in order to configure whether log entries about detected start or stop trigger events shall be added to the log file or not.

FEATURE (Additional Analyzing Function ConvSpm())
The additional Analyzing Function ConvSpm() can be used in order to integrate or derivate a spectrum. For example, an acceleration spectrum can be integrated into a velocity spectrum.

FEATURE (Position Bars for the Drag&Drop of Data into the Legend of Monitoring Charts)
Whenever a data is being dragged into the legend of a Monitoring Chart, a position bar now displays the exact position to which the data would be dropped according to the current mouse position.

CHANGE (Avoiding of massive Amounts of Log Entries in case of Timestamp Errors)
In case multiple entries about timestamp errors are generated from a single timestamp client, not more than one message of a type is being added to the system log within each 60 seconds.

CHANGE (Improved Recovery from Timestamp Errors)
In case timestamp errors occur constantly, the system automatically suspends and resumes all Device Profiles of IEEE1394 devices. This attempt helps to recover from situations where the CPU usage comes close to 100%, because a constant CPU usage of close to 100% makes it impossible for X-Tools to calculate all timestamps properly.

CHANGE (Separation between Timestamp Errors and lost IEEE1394 Packets)
In case the timestamp error between any two measurement packets is an integer multiple of the current sample rate, the ***X-Tools Server*** now detects that the cause must be a lost IEEE1394 packet. Therefore, this case does not cause log entries about timestamp errors any more.

CHANGE (The Analyzing Function GenAlrmBnd() is an advanced Analyzing Function)
The Analyzing Function GenAlrmBnd() can be used only in by the Professional edition of X-Tools, not by the Standard and Demo editions.

CHANGE (The Analyzing Function IIRHPCH2() is an advanced Analyzing Function)
The Analyzing Function IIRHPCH2() can be used only in by the Professional edition of X-Tools, not by the Standard and Demo editions.

CHANGE (The Index of the Analyzing Function Mux() starts at 0 instead of 1)
The index of the Analyzing Function Mux() now starts with 0 instead of 1.

CHANGE (Consideration of the internal processing Delay for slow Channels of the IFN VIB-A)
For sample rates of 4 kHz and above, an internal filter stage is being used by the IFN VIB-A. For the slower sample rate of 333 Hz an additional filter stage is added and a third filter stage is used for a sample rate of 14 Hz. Each additional filter stage causes a certain processing delay which now is being deducted by the X-Tools Server.

CHANGE (Improved Data Supervision)
The internal mechanism of the data supervision for Device Profiles has been improved in order to achieve less dependencies to other tasks of the X-Tools Server.

CHANGE (Faster Reaction to attaching of IEEE1394 Devices)
The reaction of the X-Tools Server to attaching of IEEE1394 devices has been improved so that these devices appear within X-Tools faster now.

CHANGE (Improved Device Communication)
The communication to all devices from all types of interfaces was serialized through a common entry point. This serialization has been removed which allows calls to multiple devices simultaneously.

CHANGE (Improved Startup of Device Profiles)
The data manager is not being locked during the whole startup phase of Device Profiles any more. As a result, all other modules still can access the already present data also while a Device Profile is being started, which causes less moments where the X-Tools Client seems to be not reacting.

CHANGE (Faster Outputs for the CTN WatchGuard T001)
The X-Tools Server now allows to switch the outputs of a CTN WatchGuard T001 each 10 ms now (instead of 1 second like it was so far).

CHANGE (Self Test at the Start/Resume of Device Profiles for IFN AI Devices)
In case the Device Profile for an IFN AI is being started or resumed, the executed self test performs the determination of the hardware offsets but does not check the status of the inputs (cable break yes/no) any more.

CHANGE (Cyclic Self Test for IFN AI and IFN VIB-A Devices)
In case the cyclic self test is being configured to “Determine Hardware Offsets during the Measurement”, no check of the status of the inputs is being done any more.

CHANGE (Updated IEEE1394 Device Driver)
The IEEE1394 device driver has been upgraded to V 3.0.9.4.

CHANGE (Maximal undo/redo Buffer Size within Monitoring Charts)
The maximal undo/redo buffer size within Monitoring Charts has been changed from 100 to 99.

CHANGE (Height of the “Data” Table within the SPE Binary T001)
The height of the “Data” table now is always an integer multiple of the height of one row. In addition, the height of the “Data” table now is not bigger than the visible height of the SPE Binary T001 itself.

CHANGE (Improved undo/redo for Mouse Wheel Operations within Monitoring Charts)
Previously, each mouse wheel event created its own undo/redo point. Now there is only one undo/redo point being created for each turn of the mouse wheel.

CHANGE (Alarm Interval of MonDisk())
Previously, the alarm interval was counted from the start time of the Analyzing Model/Analyzing Script. Now the alarm interval counter starts at the time of the last log entry about a detected alarm.

CHANGE (Review of the Icons of all Message Boxes)
Some message boxes within the system did not have the proper icons. The icons of all present message boxes have been reviewed so that they contain the proper icons now.

CHANGE (Review of all Log Entries)
The priorities of all log entries have been reviewed. In addition some log entries have been modified in order to achieve a more common look of all log entries.

CHANGE (Review of the Message Box about the opening of corrupted Configuration Files)
The message boxes which are being used by editors in order to notify a user that a corrupted Configuration File could not be opened have been changed to a more common look and feel.

CHANGE (Review of the contents of the Tool Tip of the X-Tools Server)
The information which is being displayed by the tool tip of the X-Tools Server has been reviewed.

CHANGE (The assigned “Chart Name” must be unique within one Monitoring View)
Monitoring Views do not allow any more to assign the same “Chart Name” to multiple of their Monitoring Charts. The name of each Monitoring Chart must be unique within its Monitoring View.

CHANGE (Empty Password Fields do not contain Stars any more)
In case a password field contains an empty password, the password field stays empty (and does not display stars) also when it does not have the input focus.

CHANGE (Improved Log Entry of the X-Tools Client in case the X-Tools Server shuts down)
In case a connected X-Tools Server shuts down, the system log of the X-Tools Client now does not report unexpected error conditions any more.

CHANGE (Changed behavior of Start/Pause/Continue/Stop for Directories)
Previously, the start/pause/continue/stop commands of directories applied the chosen operation to all files below the selected directory but not to the sub-directories of the chosen directory. Now, the chosen operation is applied to all files of the selected directory, to all sub-directories of the selected directory and to all of their files and sub-directories.

CHANGE (Improved Device Management Engine)
The internal architecture of the Device Management Engine has been improved in order to reduce the possibility of malfunctions, dead-locks and crashes in case of high system loads.

CHANGE (Separation between the X-Tools Server Startup and the improved Availability)
Previously, the “Automated Startup” entry from the global options was used in order to configure whether the X-Tools Server shall be started as service, during the login of a Windows user or not at all. When the X-Tools Server was started as a service, it automatically was monitored and restored in case of severe errors (e.g. crashes). All other startup types could not monitor the X-Tools Server. Now, the “Automated Startup” entry does not influence the monitoring of the X-Tools Server and the “Automated Restart” entry from the global options can be used instead in order to turn the monitoring on or off for any of the available startup types.

CHANGE (Changed Scaling of Axis)
The scaling of axis has been changed. Now, the axis always displays the full value up to a certain amount of digits and the axis also displays the exponent directly. The legend does not contain information about the scaling any more and a tool tip is available which shows the full number of each entry of the axis.

CHANGE (Faster saving of new Files)
Whenever the **Save As** dialog is being opened, the input focus is being set to the file name entry automatically and the user can start to enter the new file name directly.

CHANGE (Keyboard Shortcuts for all Monitoring Charts)
The keyboard shortcuts of all Monitoring Charts have been reviewed so that now the behavior of all Monitoring Charts is more common. Compared to previous versions, there are more keyboard shortcuts available now.

CHANGE (Greeting Message to SMTP Servers)
In case a username and password is specified for the connection to a SMTP server for sending of emails, the “EHLO” welcome message is being used now instead of the “HELO” welcome message.

CHANGE (Notification of very low Memory Conditions)
Previously, a message box could be displayed in case of low memory conditions. Now, low memory conditions are ignored in case they can cause only temporary effects and low memory conditions lead to a crash in case they point to a severe error.

CHANGE (Advanced appending, overwriting and exporting of offline Data)
The handling of the preceding and of the following probes has been improved for all interval-based appending, overwriting and exporting operations.

CHANGE (Removing of “X-Tools Server.ini”)
The file “X-Tools Server.ini” has been removed because it is not needed any more. In addition, the information about the main path has been removed from the global options of the X-Tools Server.

CHANGE (Faster editing within the Analyzing Model Editor)
Previously, a message box was displayed to the user in case the user tried to connect two inputs or two outputs. Now, the second selected connector removes the selection from the previously selected connector automatically, there is no message box any more and the editing can continue directly.

CHANGE (Reloading of Device Profile Parameters within the DPE ION SIMATIC S7)
Whenever the device profile parameters are being reloaded by this Device Profile Editor, also the device type of the Device Profile is set to the device type of the current target device.

CHANGE (Improved Shutdown of the X-Tools Server through the X-Tools Client)
Previously, a fast shut down and restart of the X-Tools Client could run into the issue that the X-Tools Server was not restarted together with the X-Tools Client, because the X-Tools Server was still shutting down during the restart of the X-Tools Client. In this case, the X-Tools Client thought that the X-Tools Server is online already and did not start it at all. Now, the X-Tools Client waits during its own termination until the X-Tools Server has been shut down.

CHANGE (Maximal Interval of all Analyzing Functions which output Data to the System)
Previously, the maximal interval for the recode mode was 3,6 seconds. Now, the maximal allowed interval is 3600 seconds (one hour).

CHANGE (SndEmail() can send to multiple Recipients)
Multiple recipients can be configured now to receive an email which is being sent via the Analyzing Function SndEmail().

CHANGE (Opening of corrupted Analyzing Scripts)
Previously, there was a chance that corrupted Analyzing Scripts were opened by the Analyzing Script Editor. In this case, the content of the corrupted file was displayed by the edit box of the Analyzing Script Editor. Now, the Analyzing Script Editor refuses to open corrupted Analyzing Scripts and it displays an according message box.

CHANGE (Tool Tip of Devices with not-unique Name or UIK)
In case the name or UIK of a device is not unique, the tool tip of the affected device within the DMX shows the according information now.

CHANGE (The “Fit to Chart” Operation is added to the Undo/Redo Buffer now)
Each “Fit to Chart” operation now also increases the undo/redo buffer counter and can be undone/redone.

CHANGE (Pausing and Continuing does not clear the Undo/Redo Buffer any more)
The undo/redo buffer counters are not being reset to 0 any more when the Monitoring Chart is being paused or continued. Therefore, the last zooming and shifting operations can be undone/redone also in case there were pausing and continuing operations in between.

CHANGE (The ANF RemoveData() works case-insensitive now)
The file name which is being passed to the ANF RemoveData() is case-insensitive now. Thus, RemoveData() removes the created offline data of another Configuration File regardless to its upper-/lowercase spelling.

CHANGE (Improved Detection of corrupted Configuration Files)
The detection of corrupted Configuration Files has been improved. Previously, ***X-Tools*** could crash in worst case in case it attempted to load a corrupted Configuration File.

CHANGE (Improved Commonness for the Naming of the X-Tools Client and the X-Tools Server)
The naming of the ***X-Tools Client*** and of the ***X-Tools Server*** has been reviewed in order to become more common at all places, like the log files, tool tips and tree branches.

CHANGE (Removing of meaningless Log Entries)
Analyzing Models and Analyzing Scripts do not output log entries about the “Code Position” or “Occurred at” any more in case the only available information is “N/A”.

CHANGE (Updating of the DMS Explorer via <F5>)
In case <F5> is being pressed within the DMS Explorer, also the list of currently connected devices is updated now. Previously, the update covered only the present files.

CHANGE (Usage of the low Fragmentation Heap)
The ***X-Tools Server*** now uses the low fragmentation heap for all memory allocations. In case of applications with frequent allocation and freeing of memory (e.g. storing of fast data, pause/continue within Monitoring Views or frequent start/stop of Configuration Files), the low fragmentation heap allows to run the application longer without running into low-memory conditions because of memory fragmentation.

CHANGE (Improved Speed for the loading of offline Data)
The loading of offline data files has been speed up several times.

CHANGE (<Cursor up> within Combo Boxes)
In case the <Cursor up> keyboard key is being pressed while the topmost entry of the combo box is selected, the combo box is not being left any more.

BUGFIX (Memory Leak when opening of Analyzing Models)
During the opening of Analyzing Models there was a possibility for a memory leak. In this case, the allocated resources were not freed at the closing of the Analyzing Model.

BUGFIX (Possible Crash in case there were no GDI Resources available)
In case the X-Tools Client could not allocate needed GDI resources there was a possibility to end up in a crash.

BUGFIX (Wrong handling of the IEEE1394 Bus Reset Count 0)
In case the IEEE1394 bus reset count wrapped back from 255 to 0 the X-Tools Server did not process this bus reset. As a result, the enumeration of present devices did not take place and the X-Tools Server did not connect to any IEEE1394 devices until the next IEEE1394 bus reset took place.

BUGFIX (Possibility for missing Clean-Up after an IEEE1394 Bus Reset)
After an IEEE1394 bus reset took place there was a possibility that the necessary clean-up of an address range failed. In such a case it could happen that the following communications to IEEE1394 devices failed.

BUGFIX (Possible Hang during the start/resume of Device Profiles)
A failed start or resume of a Device Profile could cause a permanent hang of the X-Tools Server because the necessary clean-up was not being performed in some cases.

BUGFIX (Permanently suspended Device Profiles)
In case of massive amounts of device attaches and detaches within short time there was a possibility that a Device Profile became suspended and never was resumed, thus it stayed suspended forever.

BUGFIX (Disappearing Stop Event “Immediately”)
The stop event “Immediately” was not being shown within the SPE Binary T001 in some cases.

BUGFIX (Possible Memory Leak within the nonpaged Kernel Memory)
In case of huge amounts of IEEE1394 bus resets there was a possibility to end up with a memory leak within the nonpaged memory of the Windows kernel. This memory leak was able to consume all of the available non-paged memory, in which case most system functions stopped to work. In worst case, also a blue screen could occur.

BUGFIX (Visualization of binary Bars)
In case binary bars with a value of 1 were visualized within the MTC yt T001, the filling of the bar was not being done after the last known timestamp from the data. In case of data which was recorded with a record mode of “Changes only”, the filling was always missing because of this effect.

BUGFIX (Missing suspend of Storage Profiles in case of an unavailable Storage Location)
In case the storage location of a Storage Profile was not present the Storage Profile could stay in status “started” instead of suspending. This wrong behavior occurred in case the size of the ring buffer was very low (when it contained less than 10 seconds of data).

BUGFIX (Data Supervision Entries in case of slow Sample Rates of the IFN VIB-ACC)
In case one channel of an IFN VIB-ACC was configured to a sample rate of 14 Hz, the data supervision could have created a log entry even though the data from the other channels was available constantly.

BUGFIX (Wrong loading of Offline Data Files which contain only a single Probe before their Start Time)
In case of offline data files which contain only one probe and when this probe is before the start time of the offline data file, the loading sometimes did not return any value and an offline data with zero probes was displayed within the MDX.

BUGFIX (Wrong loading of Offline Data Files which contain only two special Probes)
In case of offline data files which contain only two probes and when one of these probes is before the start time and the other probe is after the stop time of the offline data file, the loading sometimes did not return any value and an offline data with zero probes was displayed within the MDX.

BUGFIX (Wrong loading of Offline Data Files in case of the changes-based Loading Modes)
In case a loading mode of “Changes only” or “Changes and Interval” was used, the preceding and following probes could be added wrongly, especially in case multiple files were appended together.

BUGFIX (Crash within the ANF OutputTCP())
In case one input of the ANF OutputTCP() was not connected, the Analyzing Function could end up in a crash.

BUGFIX (Wrong Outputs from the ANF ConvVToB1D())
In case the precision was being set to a value different than “Decimal64”, the created output values were wrong.

BUGFIX (Wrong Reset of the Graph Buffer of the MTC yt T001)
There was a possibility that the graph buffer of the MTC yt T001 has been reset without a reason. This could be observed especially in case longer time intervals (multiple hours) were displayed. After each reset, only the values which were available within the ring buffer of the displayed data could be displayed and all older values were not visible any more within the MTC yt T001.

BUGFIX (Prefix Operators for the Function Arguments of Analyzing Scripts were ignored)
Within the list of function arguments, Analyzing Scripts ignored the prefix operators “++” and “--”, e.g. “++Variable” or “--Variable”. Prefix operators did not have any effects and there also was no error message to inform the user.

BUGFIX (Possible Memory Leak in case of low Memory Conditions during loading of Offline Data)
In case X-Tools ran out of memory during the loading of offline data, the loading was aborted but the memory of the already allocated offline data could not be freed any more until the X-Tools Server was restarted.

BUGFIX (Wrong Message Box while removing of Offline Data from the MDS Explorer)
In case multiple offline data categories contained the same offline data and all of these offline data were removed at once (either via the <Del> key or via the “Remove” context menu item), a message box could appear which indicated an error during the remove although actually there was no error.

BUGFIX (The Menu Bar could process Keys even in Cases where it did not have the Input Focus)
In case a button from the menu bar was selected via the <Tab> key and the input focus was changed by the mouse to a cell of a table of the same dialog, some dialogs executed the menu bar button when <Enter> was pressed afterwards (instead of executing of <Enter> for the cell of the table).

BUGFIX (Wrong handling of big Initialization Log Files)
In case the Initialization Log File become bigger than 1 MByte it could not be deleted any more. As a result, the X-Tools Server was started in Safe Mode each time when the /safe command line parameter was specified (e.g. through the X-Tools Service).

BUGFIX (Wrong Resolution for the positioning of the Cursor Lines)
The calculation from timestamps to screen coordinates was different for measurement values and cursor lines. In rare cases this rounding difference caused the cursor line to be shifted by one pixel against measurement values. The same effect could cause that the cursor lines where shifted wrongly by half of a nanosecond.

BUGFIX (Wrong counting of the undo/redo Buffer within Monitoring Charts)
The actual undo/redo buffer within Monitoring Charts always kept one entry less than specified. For example, in case an undo/redo buffer size of 10 values was specified, only 9 operations could be undone.

BUGFIX (Wrong updating of the Column Width within the System Log Viewer)
In case the width of the System Log Viewer has been changed (e.g. by showing/hiding of the MMS Explorer or by a manual change of the width of the System Log Viewer), the “Entry” column has changed its width automatically. In some cases it could happen that the scroll bar started to hide a small part of the other columns, in which case the “Entry” column had to be resized manually after the automatic resize.

BUGFIX (Inverted Operation of Main Profiles)
There was a possibility that the X-Tools Client started to show connected X-Tools Servers after stopping of the

current Main Profile. In this situation, all X-Tools Servers also disappeared from the X-Tools Client when the Main Profile was started again.

BUGFIX (Mouse Wheel Operations and the undo/redo Buffer of the MTC ynm T001)
Zooming operations via the mouse wheel where not added to the undo/redo buffer of the MTC ynm T001 and therefore they could not be undone/redone.

BUGFIX (Global Variables within Analyzing Scripts could not be initialized with negative Values)
It was not possible to create and initialize global variables within Analyzing Scripts when the initial value was negative.

BUGFIX (Storage Profiles for offline Data did not work for the Stop Triggers which were based on Data)
In case a Storage Profile was configured to store offline data and in case the stop trigger of this Storage Profile was configured to base on the value of a data, the Storage Profile stopped even in case the specified data for the stop trigger was present as offline data.

BUGFIX (Possible Crashes in case of low Memory Conditions)
Several places have been secured against crashes in case of low memory conditions.

BUGFIX (Handling of Time Zone Changes of the X-Tools Server through Monitoring Charts)
In case a Monitoring Chart was configured to display the time on base of the local time zone of the server from which it gets the data, the displayed time did not react in case the time zone at the source server had been changed. Now, the server notifies all connected clients in case its local time zone is being changed and the Monitoring Charts also start to use the new time zone immediately.

BUGFIX (Startup Files are not being saved when it is not needed any more)
There was a possibility that the startup files of the system were written during the startup of the system although their content did not change.

BUGFIX (Removing of unused Scroll Bars)
There was a possibility that the scroll bars stayed present within a workspace even in case all of the contained dialogs had been closed already.

BUGFIX (Maximizing of the Main Window did not work when the Main Title Bar was hidden)
In case the main title bar was hidden, double-clicking onto the appearing main title bar did not maximize the main window.

BUGFIX (InB1D() did not accept input Data which did not contain some optional Contents)
InB1D() now uses default values whenever an optional content of the input data is not present.

BUGFIX (Restoring of the Size of the Log Viewer Window within the ODL Binary T001)
Minimizing of the “Log Entries” table and restoring of it did not lead to the initial height of the “Log Entries” table again.

BUGFIX (Shifting of Data in y-Direction when the y-Axes Area is hidden)
In case the y-Axes Area was hidden within the MTC yt T001 and MTC yn T001, it was not possible any more to shift the displayed curves into the y-direction.

BUGFIX (Possible Crash in case the Skin File has been corrupted)
The X-Tools Client could crash during the loading of the skin file in case the skin file was corrupted.

BUGFIX (Monitoring Charts were opened always at the Bottom)
In case data has been dropped into a Monitoring View Editor and a new Monitoring Chart had to be opened because of the drop, the new Monitoring Chart was placed always at the bottom of the Monitoring View. Instead, the Monitoring Chart is opened at the position where the mouse cursor has been released now, which can be left, right, at the bottom or at the top of an already existing Monitoring Chart.

BUGFIX (Unwanted Change of the Column Width within the Advanced Load/Store/Export Dialogs)
Within the **Advanced Append**, **Advanced Overwrite**, **Advanced Store** and **Advanced Export** dialogs, the width of the columns could change whenever a new value was entered into any of the editable cells.

BUGFIX (Possible Crash because of the deleting of a Location)
There was a possibility that X-Tools could crash when the root directory of one of its locations was deleted from outside. Typically the root directories of locations of X-Tools can not be deleted from outside because they are locked.

BUGFIX (Disconnects because of Network Tunnels)
In case the connection between X-Tools Client and X-Tools Server was established via a network tunnel which changed the used communication ports, it could happen that the X-Tools Server refused the connection to the X-Tools Client because for the X-Tools Client the used ports seemed to be wrong. Now, the X-Tools Server uses an improved mechanism in order to verify whether the connection is consistent.

BUGFIX (Wrong Stop Times of offline Data)
In case of data which produced a value only once each few seconds there was a possibility that the stored offline data files contained wrong stop times.

BUGFIX (Missing Start Events of offline Data)
In case slow data has been stored there was a possibility that no start event has been added to the offline data file. As a result, the visualization and possible post-calculation of the data could show wrong information.

BUGFIX (Wrong Date for sent Emails)
The emails which were sent by X-Tools had an improper format for their date. Therefore, some email clients were unable to display the sent date which was transmitted by X-Tools.

BUGFIX (Possible Crash within Rsmpl())
The initialization of the Analyzing Function Rsmpl() could cause an access violation and a following crash.

BUGFIX (Possible Crash when loading huge amounts of small offline Data Files)
The X-Tools Server could crash during the loading of huge amounts of small offline data files.

BUGFIX (Offline Data loading after the re-initialization of the X-Tools Client)
In case the ***X-Tools Server*** was re-initialized while there were still offline data loading tasks in the queue, the remaining tasks were continued (and the according offline data was loaded) after the re-initialization of the ***X-Tools Server***.

BUGFIX (Possible Memory Leak after the re-initialization of the X-Tools Client)
In case the ***X-Tools Server*** was re-initialized while there was still some offline data loading in progress, some fragments of memory could stay present also after the re-initialization.

BUGFIX (Possible Crash when opening of Monitoring Views which contain an empty MTC ynm T001)
The X-Tools Client could crash in case a Monitoring View was attempted to be opened which contained an empty MTC ynm T001.

BUGFIX (Possible Hang in case big Amounts of Text are pasted into the ASE Standard T001)
The X-Tools Client could hang in case a big amount of text was pasted into the edit control of the ASE Standard T001. Now, not more than 32.000 characters can be pasted into this edit control.

BUGFIX (Lost Visualization in case of a detach and re-attach of a Device)
The currently paused visualization within a Monitoring View could loose all of its contained values in case the source device of the visualized data was detached and re-attached.

BUGFIX (Usage of Arrays within Time Slice based Analyzing Scripts)
It was not possible to use arrays within time slice based Analyzing Scripts. Starting of such Analyzing Scripts always ended up with a compiler error.

BUGFIX (Destroyed Device Profiles of ION SIMATIC S7-300 T001 and ION SIMATIC S7-400 T001)
Device Profiles of ION SIMATIC S7-300 T001 and ION SIMATIC S7-400 T001 devices could be destroyed in case they were opened and saved within a DPE ION SIMATIC S7.

BUGFIX (Possible Crash when using the Mouse Wheel within Monitoring Charts)
In case the option “Keep Width of Curve Area synchronized” was active and the mouse cursor was above an area where there was no y-axis below it, using of the mouse wheel could lead to a crash of the ***X-Tools Client***.

BUGFIX (Time Difference between CH1/2 and CH3/4/5/6 of the IFN VIB-ACC)
A different internal processing delay was used for CH1/2 and CH3/4/5/6 of the IFN VIB-ACC. Now, the internal processing delay is equal for all six channels of this device.

BUGFIX (Possible Crash during the Termination of the X-Tools Server)
A timing issue could lead to a crash during the termination of the ***X-Tools Server***.

BUGFIX (Missing Refresh of the “Treatment of Status Codes” Table)
The contents of the “Treatment of Status Codes” tables within the AME Standard T001 and the ASE Standard T001 were not updated when a new Analyzing Model or Analyzing Script was dragged into an editor which contained another Analyzing Model or Analyzing Script already.

BUGFIX (Missing Refresh of the “Example” Cell within “Data Style” Dialogs)
The displayed example was not updated after the “Default” button has been pressed.

BUGFIX (Possible Flood of Log Entries in case of low Disk Space)
In case there was no more space available at the disk to which the log entries should be stored there was a possibility to end up in a large amount of log entries about log entries which could not be written.

BUGFIX (Possible Crash of the Storage System in case its Input Data disappears and reappears)
There was a possibility to end up with a crash of the Storage System in case the input data of the Storage Profile disappeared and reappeared.

BUGFIX (Possible Crash of the Storage System in Combination with very long File Paths)
There was a possibility to end up with a crash of the Storage System in case the path to the to-be-stored offline data files was very long (longer than 512 bytes).

BUGFIX (Possible Flood of Log Entries when using the simulated ION BinaryInput T001)
In case the simulated ION BinaryInput T001 was configured with a sample time of bigger than 250 ms, a lot of log entries about a too slow simulation could occur.

BUGFIX (Possible Corruption of the Time Correction)
In case of bad timing, the occurrence of a single timestamp error could cause a corruption of the time correction, which lead to several log entries before the time correction could recover again.

BUGFIX (The ANF Start() handles stopping Configuration Files wrongly)
In case the ANF Start() is being used in order to start a Configuration File which stops immediately, Start() waited endlessly for the start or stopping of this Configuration File.

BUGFIX (The ANF Start() handles corrupted Configuration Files wrongly)
In case the ANF Start() is being used in order to start a Configuration File which is corrupted, Start() did not return immediately. Instead, it waited for the timeout time before it returned.

BUGFIX (The ANF Start() handles suspending Configuration Files wrongly)
In case the ANF Start() is being used in order to start a Configuration File which suspends immediately, Start() did not return even in case “DoNotWait” was specified as parameter. Start() also did not return after the timeout in case “Wait” was specified as parameter.

BUGFIX (Wrong Visualization of moderate and thick Grids within the MTC ynm T001)
In case the MTC ynm T001 displayed two data where one of them was configured to “Surface” and the other one to “Grid” with “moderate” or “thick” lines, the position of the data which was displayed as grid was wrong.

BUGFIX (High CPU Usage during the Stopping of Configuration Files through the ANF Stop())
In case of single core computers, a high CPU usage could be observed during the stopping of Configuration Files out of sequence control scripts which used the ANF Stop().

BUGFIX (Possible Crash in case of fast start and stop of an Interface Profile)
Fast start and stop of an Interface Profile could end up in a crash of the ***X-Tools Server***.

BUGFIX (Missing Log Entries about the resume of Device Profiles)
In case a Device Profile suspended and resumed very frequently, the log entry about the resume did not occur more often than once each 60 seconds.

BUGFIX (Missing Data from the simulated ION PROFIBUS DP Spy T001)
The simulation of the ION PROFIBUS DP Spy T001 produced some of its data with a wrong frame check sum. This data did not reach the internal ring buffers of ***X-Tools*** because PROFIBUS DP packets with a wrong frame check sum are skipped.

BUGFIX (Possible Hang of the X-Tools Server during the start of a Device Profile with invalid Data Names)
In case it was attempted to start a Device Profile which contains invalid data names, the ***X-Tools Server*** could end up in a hang.

BUGFIX (Possibility for invalid Data Names within several Device Profile Editors)
Some Device Profile Editors allowed to enter invalid names for message channels. In case the “Message Channel Contents” table was used afterwards in order to define data with default names, these default names also contained invalid characters.

BUGFIX (Wrong Icon during the Drag&Drop of Data from the MDX)
In case a Drag&Drop operation of data from the MDX was going on and data was added to/removed from the MDX before the operation was completed, the mouse cursor icon could get trapped in one icon state. In this situation, the mouse cursor icon did not change any more no matter whether the mouse was above a place which accepts the dragged data or not.

BUGFIX (Wrong rendering of too big Values within Monitoring Charts)
In case a to-be-displayed value was out of range, the Monitoring Charts could display wrong lines all over the screen.

BUGFIX (The Cutoff Frequencies of all Filter Analyzing Functions were interpreted as Integers internally)
All filter Analyzing Functions interpreted the provided cutoff frequencies as integers internally. The following Analyzing Functions were affected: BP(), BS(), HP(), LP(), IIRBPBT(), IIRBSBT(), IIRHPBT(), IIRLPBT(), IIRBPCH1(), IIRBSCH1(), IIRHPCH1(), IIRLPCH1(), IIRBPCH2(), IIRBSCH2(), IIRHPCH2() and IIRLPCH2().

BUGFIX (Missing clean-up in case of failed loading of offline Data)
In case the loading of offline data had to be cancelled because of not enough memory, there was a possibility that the already loaded parts of the data were not freed from the memory properly.

BUGFIX (Missing clean-up during the stopping of Storage Profiles)
During the manual stop of Storage Profiles there was a possibility that not all of the allocated memory was freed. In case of frequent start and stop operations a significant amount of memory could be used.

BUGFIX (Wrong Hit Check for the Tool Tips within the AME Standard T001)
After an Analyzing Function was expanded within the AME Standard T001, the hit test for the tool tip was not updated. Therefore, the AME Standard T001 displayed the tool tip for the collapsed Analyzing Function even in case the Analyzing Function was expanded.

BUGFIX (Possible Memory Leak when starting and stopping of Device Profiles)
During the start and stop of Device Profiles there was a possibility that not all of the allocated memory was freed. In case of frequent start and stop operations a significant amount of memory could be used.

BUGFIX (Missing resume of Analyzing Models)
In case “Automatic Takeover of changed Configuration Files” was set to “Do not perform automatic Takeover” and a to-be-started Analyzing Model suspended because of missing input data, this Analyzing Model did not resume ever, even in case the input data appeared at a later moment.

BUGFIX (Improved Enumeration of IEEE1394 Devices)
The previous enumeration of IEEE1394 devices stopped at the first device which did not answer properly. Now, also all of the following devices are checked so that a single device can not stop the operation of all other devices any more.

BUGFIX (Wrong Communication to IEEE1394 Devices)
In cases where more than 32 IEEE1394 devices (I/O-Nodes and Interface Nodes) were attached to the PC, there was a possibility that not all of the attached IEEE1394 devices were recognized by ***X-Tools***.

BUGFIX (Possible Hang of Storage Profiles after a Change of the System Time)
In case the system time was changed back into the past there was a possibility that Storage Profiles could end up in a hang.

BUGFIX (Missing Pre Trigger Time in case of the Storage Mode “Interval only”)
In case the storage mode of a data was “Interval only” and a pre trigger time was specified, this pre trigger time was ignored and only one value before the start trigger time was added to the offline data file.

BUGFIX (The License of Software I/O-Nodes is not released during the Re-Initialization of the X-Tools Server)
In case a license for a software I/O-Node (e.g. ION SIMATIC S7 PN, ION SIMOTION T001, …) was leased at the moment when the ***X-Tools Server*** was re-initialized, this license was not released during the re-initialization. Therefore, the following attempt to lease the license failed during the further re-initialization of the ***X-Tools Server***.

BUGFIX (Possibly wrong Header of .csv-exported 2-dimensional Data)
Within the header column of exported .csv-data, the number of column captions was equal to the number of rows of the 2-dimensional data. Now, the number of column captions is equal to the number of columns.

BUGFIX (Wrong Index Calculation within and Visualization of the output Data of the ANF TLC())
The index calculation was wrong, therefore all values were counted one class too low. In addition, the visualization of the output data within the Monitoring System has used classes instead of ranges.

BUGFIX (Wrong Visualization of the output Data of the ANF RFC())
The visualization of the output data within the Monitoring System has used classes instead of ranges.

BUGFIX (Leaving of the Safe Mode)
The re-initialization of the ***X-Tools Server*** did not disable the safe mode, thus the safe mode could not be left without a restart of the ***X-Tools Server***.

BUGFIX (Behavior of Output B of CTN WatchGuard T001 Devices in UPS Mode)
In case the CTN WatchGuard T001 is operated in UPS mode and the system shutdown is being initialized, the relay of output B is attracted now. When the shutdown is complete, the power supply of the USB port is turned off by the computer and the relay is released automatically.

BUGFIX (Timestamp Errors after the Restart of ION PROFIBUS DP T001 Devices)
There was a possibility to receive log entries about timestamp errors after a restart of ION PROFIBUS DP T001 devices through the data supervision.

BUGFIX (Wrong Undo and Redo within Monitoring Charts)
In some cases the undo and redo operations did not allow to go back/forth step by step. In case of an error, an arbitrary position and zoom-factor could be displayed instead of the expected last/next position and zoom-factor.

2.4 X-Tools V 03.03 -> X-Tools V 03.04

The following changes have been introduced in ***X-Tools*** V 03.04:

FEATURE (Support for Windows 7 as Operating System)
In addition to Windows XP and Windows Server 2003, now also Windows 7 is supported as operating system.

FEATURE (OPC UA Client)
X-Tools now can act as OPC UA client. Multiple OPC UA servers can be accessed simultaneously and can be used in order to browse their address room, to receive online data from them and to write their values.

FEATURE (OPC UA Server)
X-Tools now can act as OPC UA server. Multiple OPC UA clients can connect to ***X-Tools*** as OPC UA server and can browse the online data of ***X-Tools*** as well as receive the values of the online data.

FEATURE (Advanced Versioning of binary Files)
The format of the version for all binary files has been changed from “V xx.yy.ll.zzzz” to “V xx.yy.zz.hh”. In former versions, binary files were accepted only in case their complete version information (xx, yy, ll and zzzz) was identical to the main executable. Now, the last part of the version information (“hh”) can be different to the main executable, which allows updating of single files (e.g. in case of a hotfix).

FEATURE (Screenshots)
The context menu of each **Monitoring Chart** now allows to print and to save a screenshot of the current visualization.

FEATURE (Additional Monitoring Chart MTC Orbit T001)
The new **Monitoring Chart** allows visualize orbits, including Smax and Spp. The visualized orbits can be calculated via the ANF Orbit().

FEATURE (Additional Analyzing Function Orbit())
The additional Analyzing Function Orbit() can be used in order to calculate the orbit, Smax and Spp out of the provided x- and y-data.

FEATURE (Additional Analyzing Function OutOrbit())
The additional Analyzing Function OutOrbit() can be used in order to output a calculated orbit as online or offline data.

FEATURE (Additional Analyzing Function InTCP())
The additional Analyzing Function InTCP() can be used in order to receive TCP packets which are being sent by any external application or device. The data from the received TCP packet can be decoded via GetVFrmB1D() afterwards and the extracted values can be used like all other data values within ***X-Tools***.

FEATURE (Additional Analyzing Function GetVFrmB1D())
The additional Analyzing Function GetVFrmB1D() can be used in order to extract one or multiple data values out from the buffer which has been received via InTCP().

FEATURE (Additional Analyzing Function GetVFrmSD())
The additional Analyzing Function GetVFrmSD() can be used in order to extract a single value out of a time series of data.

FEATURE (Additional Analyzing Function Pause())
The additional Analyzing Function Pause() can be used in order to pause the execution of an already started Configuration File. An according example Analyzing Script has been added to the example location.

FEATURE (Additional Analyzing Function Continue())
The additional Analyzing Function Continue() can be used in order to continue the execution of a currently paused Configuration File. An according example Analyzing Script has been added to the example location.

FEATURE (Loading of Data from the SIPLUS CMS2000 System)
The **ODL Binary T001** has been replaced by the **ODL Standard T001** which now is able to load also the data from the SIPLUS CMS2000 system.

FEATURE (Loading of Data from .wav Files)
The **ODL Binary T001** has been replaced by the **ODL Standard T001** which now is able to load also the data from WAVE (*.wav) files.

FEATURE (Loading of Data from .csv Files)
The **ODL Binary T001** has been replaced by the **ODL Standard T001** which now is able to load also the data from CSV (*.csv) files.

FEATURE (Number of Data within the MDS Explorer)
Each branch within the **MDS Explorer** now displays how many data are present below it and all of its sub-branches.

FEATURE (Additional Information about each X-Tools Server within the MMS Explorer)
The sub-items of each ***X-Tools Server*** within the **MMS Explorer** now provide additional information about its current connection state and authorization state.

FEATURE (Information about the currently connected Clients within the MMS Explorer)
The sub-items of each ***X-Tools Server*** within the **MMS Explorer** now provide detailed information about the currently connected clients.

FEATURE (Number of Devices within the DMS Explorer)
The interface branches within the **DMS Explorer** now display how many devices are present below them.

FEATURE (IEEE1394 Bus Reset via the DMS Explorer)
Via the context menu of the “IEEE1394 T001” it now is possible to force an IEEE1394 bus reset.

FEATURE (Handling of big File Buffers at the Moment of the Shutdown of the X-Tools Server)
In case the Storage System is configured in a way where more data shall be stored than the available disk throughput allows it can happen that the internal file buffers of the ***X-Tools Server*** rise up to several MBytes. When the ***X-Tools Server*** is being shut down in such a moment it outputs a log message now which shows the current size of the file buffer.

FEATURE (Support for exporting of Orbit Data to .csv Files)
The new orbit data now also can be exported to .csv files via the **MDS Explorer** and via the **ODL Standard T001**.

FEATURE (Support for exporting and Importing of Device Profiles for IFN AI and IFN VIB-A)
The **Device Profile Editors** for the IFN AI and IFN VIB-A now allow to export and import the data definitions via the context menu of the “Device Profile Settings” table.

CHANGE (X-Tools Tray Application)
The tray icon of the ***X-Tools Server*** now is provided via a separate application.

CHANGE (The Analyzing Function Delay() supports only equidistant Operating Modes)
From now on, Delay() can be used only within Analyzing Models and Analyzing Scripts which are configured for an equidistant operating mode.

CHANGE (Case-insensitive Input of the Analyzing Function WaitForConfigurationFile())
The provided state information can be of any uppercase or lowercase now. In addition, the returned status now has an initial uppercase letter and following lowercase letters.

CHANGE (Speedup of the loading of Offline Data Files)
The speed of the loading of offline data files has been improved.

CHANGE (Additional Checks during the start of Device Profiles)
Previously, the start of a Device Profile was considered to be successful after the target device has acknowledged the start properly. Now, at least one valid data packet must be received additionally. In case there is no valid data packet after the start of the Device Profile, the Device Profile is being suspended.

CHANGE (Changed Check of the Base Levels within the Analyzing Function MonAlrmSpm())
The **Analyzing Function** MonAlrmSpm() now allows its BaseL1 to be greater than or equal to BaseL0. In addition, BaseL2 can be greater than or equal to BaseL1.

CHANGE (Increased maximal Size for the Transmissions between X-Tools Client and X-Tools Server)
The maximal size of transmission between the ***X-Tools Client*** and the ***X-Tools Server*** has been increased. The previous limit could cause transmission errors especially in case of transmissions of large, encrypted User Function Files.

CHANGE (New Format of exported .csv Files)
The format of exported .csv format has been optimized for less disk usage and more human readability. Each exported .csv file now also provides more meta information about its contained data.

CHANGE (Improved Log Entry by the X-Tools Client when it can’t connect to the X-Tools Server)
In case the ***X-Tools Client*** can’t connect to the ***X-Tools Server*** because the server has the maximal amount of connected clients already, the ***X-Tools Client*** outputs an according log entry now. In addition, in case the same

reason is present as description of the error of successive connection attempts, an according log entry is added only for the first detected error.

CHANGE (New default Colors for all Cursor Lines)
New default colors have been configured for the cursor lines of all **Monitoring Charts**.

CHANGE (Additional default Location for offline Data)
In addition to the default location for offline data in the binary format of ***X-Tools*** (*.sdf.xts), another location for offline data in CSV format (*.csv) is created by default now.

CHANGE (New export Location for CSV (*.csv) and DAT (*.dat) Files)
From now on, the export of data files of format CSV (*.csv) or DAT (*.dat) must be performed into an offline data location of type CSV (*.csv).

CHANGE (Improved handling of corrupted offline Data Files)
The **ODL Standard T001** now displays also offline data files which were recognized to be corrupted.

CHANGE (Improved Log Entries about the Configuration of the X-Tools Service)
During its termination, the ***X-Tools Server*** always updates the configuration of the ***X-Tools Service*** according to the current settings from the global options. From now on, according log entries appear only in case any configuration of the X-Tools Service really had to be changed.

CHANGE (Behavior of Analyzing Functions after a "Continue")
The internal status of the following Analyzing Functions now is being reset after their parent Analyzing Model/Analyzing Script has been paused and continued again: Buffer(), Delay(), GenerateWaveForm(), Histogram1D(), Histogram2D(), Impulser(), Integral() and Stopper()

CHANGE (Behavior of the Analyzing Function Start())
In case the target Configuration File exists but is not in status "started" or "stopped" already, Start() creates an according log entry and does not attempt to start the Configuration File any more.

CHANGE (Internal Precision of the Analyzing Function Modulo())
The internal precision of the Analyzing Function Modulo() has been changed from Integer to Decimal64.

CHANGE (Ignoring of WM_TIMECHANGE after a Login via Remote Desktop)
In case a user logs in to a Windows 7 computer via Remote Desktop, the WM_TIMECHANGE window message is sent to all running applications although no change of the time takes place. In case this notification is received, ***X-Tools*** restarts all of its measurement, calculation and storing tasks. In order to avoid the restart in this situation, WM_TIMECHANGE is ignored in case it is received within 10 seconds after a user has logged in via Remote Desktop.

CHANGE (Additional Precision for the Analyzing Functions ConvertValueToBuffer1D() and GetValueFromBuffer1D())
The Analyzing Functions ConvertValueToBuffer1D() and GetValueFromBuffer1D() now also provide "Decimal64" as supported precision.

CHANGE (Limitation for simultaneously served XSI Clients)
The ***X-Tools Server*** is not able to handle more than one XSI Client simultaneously. Whenever there is an XSI Client connected already and another XSI Client attempts to connect, the connection itself is allowed but an according warning is written to the log file. In addition, none of the requests from the second XSI Client are served by the ***X-Tools Server***.

BUGFIX (Lost information about paused online Data within Monitoring Charts)
In case the online data within a **Monitoring Chart** was paused and the providing ***X-Tools Server*** was disconnected and reconnected, it was not possible any more to zoom into the paused data. Now, zooming into the paused online data is still possible in case there are only a few seconds between the disconnect and the connect.

BUGFIX (Unwanted copying of Escape Characters (") out of the System Log)
Whenever log entries were copied from the **System Log Viewer**, unwanted escape characters (") could be present within the clipboard.

BUGFIX (Lost Value during storing of a 2-dimensional Histogram)
During the storing of a data of type "2-dimensional Histogram" it could happen that the resulting offline data file contained one value less than it should.

BUGFIX (The Analyzing Function Random() did not reach the provided Maximum Value)
In case of a precision of Integer32, the **Analyzing Function** Random() did not reach the provided maximum value. Instead, the highest possible output was maximum - 1.

BUGFIX (Possible Crash when ANE.dll is missing)
In case the ANE.dll is missing and a change of the system time is detected, there was a possibility for the ***X-Tools Server*** to end up in a crash.

BUGFIX (Loading of big offline Data Files)
It was not possible to load big offline data files even with a loading mode like “Interval only” because the calculation of the estimated memory usage was wrong.

BUGFIX (Improved Memory Allocation within the Analyzing Function Delay())
In previous versions this **Analyzing Function** was able to re-allocate its internal memory once each time slice, which could cause heavy usage of kernel time.

BUGFIX (Missing update of changed UIKs)
The ***X-Tools Server*** did not recognize a changed UIK in case the UIK of one device was changed between its disconnect and the following connect.

BUGFIX (Failed open of User Function Files with conflicted Names)
Out of the **AME Standard T001**, t was not possible to open a User Function via the “Open …” context menu item in case the name of the User Function was equal to the name of an existing **Analyzing Function**.

BUGFIX (Possible Memory Leak when opening and closing of the Monitoring System)
A memory leak could occur in case the **Monitoring System** was opened and closed several times in a row.

BUGFIX (Missing apply of Standard Chart Options)
The **Monitoring Charts MTC yn T001**, **MTC ynm T001** und **MTC yx T001** did not apply all standard chart options when new **Monitoring Charts** of these types were opened. For example, in case the standard visibility of the legend was configured to be hidden, the according setting was correct within the **Chart Options** dialog but the legend still was visible.

BUGFIX (Double Error Message in case DirectX is not available)
On systems which do not support DirectX the according error message could be displayed twice in a row instead of only once.

BUGFIX (Possibly missing Log Entry about the Resume of a suspended Configuration File)
In case of resume operations which include a full stop and start of the Configuration File, the actual log message about the resume could be missing. In such a case, the last visible log entry is about the stop of the Configuration File, although the Configuration File is being resumed successfully and fully operational.

BUGFIX (Unwanted Log Entries from the X-Tools Service)
Under certain configurations, the ***X-Tools Service*** was able to create log entries each 30 seconds. In this case it created about 2 MBytes of log file per day.

BUGFIX (IEEE1394 Bus Reset caused by the ION PROFIBUS DP Spy T001)
During the restart of the Device Profile of ION PROFIBUS DP Spy T001 devices the data supervision could send an invalid command sequence to the device. In some cases the ION PROFIBUS DP Spy T001 could issue an IEEE1394 bus reset as reaction to this invalid command sequence.

BUGFIX (Possibly permanent suspend of Analyzing Models and Analyzing Scripts)
The following Analyzing Functions contained an error which could cause a permanent suspend of their parent Analyzing Model or Analyzing Script: AppBhann(), AppBlack(), AppBlett(), AppAppHamm(), AppHann(), AvgSpm(), ConvSpm(), Cpstr(), EnvHlb(), FFT(), Impulser(), Random(), RFC() and TLC().

BUGFIX (Memory Leak within the Analyzing Function TLC())
A memory leak could occur at each call of this Analyzing Function (e.g. once each cycle of the parent Analyzing Model/Analyzing Script).

BUGFIX (Possible Memory Leak when storing of online Data)
In case the online data of a currently running Storage Profile disappeared for the first time (e.g. because its Device Profile was stopped), the memory of this online data was not released.

BUGFIX (Improper handling of Locations which point to removable Disks)
Detaching of removable disks was not detected by ***X-Tools*** even in case a location has pointed to a directory at this disk. The behavior while reading and writing of files from and to such locations was undefined and could show different kinds of errors.

BUGFIX (Possible Time Errors after the re-attach of a Bus Cable)
Time errors could be detected after a detach and re-attach of the bus cable of the following devices: ION ARCNET Spy T001, ION CS31 Spy T001 and ION SIMOLINK T001.

BUGFIX (Expanding of the Analyzing Function RFC() within the AME Standard T001)
The **Analyzing Function** RFC() could not be expanded within the **AME Standard T001** after it was moved at least once.

BUGFIX (Possible Time Errors after Delays in the Socket Communication)
In case timeouts occurred during the socket (UDP or TCP) communication to a single device (e.g. to a software I/O-Node), these timeouts could freeze all socket communications. When the processing of socket communication was resumed, the processing of the old data packets which arrived in the meanwhile could lead to time errors.

BUGFIX (Improved Memory Usage for loaded Offline Data)
In case of append operations on base of data from identical time intervals, the allocated memory could be much higher than actually needed. Now, the allocated amount of memory matches exactly the number of probes within the loaded offline data.

BUGFIX (Input of invalid Characters within the "X-Tools Server Connectivity" Dialog)
Although the allowed range for the configurable ports is 1 … 65536 it was possible to insert non-integer characters like "abc" within this dialog.

BUGFIX (Possible Crash when closing of a minimized X-Tools Client)
In case a minimized ***X-Tools Client*** was closed via the context menu, a crash could occur.

BUGFIX (Possibly wrong opening of a MTC yx T001)
In case a **MTC yt T001** has been converted into a **MTC yx T001** there was a possibility that the original data from the **MTC yt T001** got lost. In this case the new **MTC yx T001** was not able to display a curve unless its y-axis data was dropped into the **MTC yx T001** again.

BUGFIX (Possible Crash when creating a new t-Axis within the MTC yt T001)
In case the "Create new t-Axis" context menu item from the legend of a **MTC yt T001** was called while the visualization was paused, a crash could occur.

BUGFIX (Possible Crash within the X-Tools Service in case the Computer shuts down)
There was a race condition which could cause the ***X-Tools Service*** to crash when it should terminate during the shut down of the computer.

BUGFIX (Possible Crash within the X-Tools Client)
There was a possibility to end up in a crash when the ***X-Tools Server*** became disconnected exactly in the moment when a Configuration File was dropped in order to start its editing.

BUGFIX (Inaccurate Log Entries for the automatic Restart of Analyzing Models/Analyzing Scripts)
The log entries during the restart of Analyzing Models/Analyzing Scripts after a change of the system time took place were not complete. The last log entry for an Analyzing Model/Analyzing Script pointed out that it was stopped, which was not true (the Analyzing Model/Analyzing Script was restarted properly).

BUGFIX (Unwanted expanding of all Items within the MDS Explorer)
In some situations, pressing of <F5> within the MDS Explorer did not only update all of the displayed items but it also expanded all of them.

BUGFIX (Improved Log Entries in case of invalid Connection Attempts)
In case the ports which are reported by the currently connecting client and the ports which are seen by the ***X-Tools Server*** are different, an according entry is added to the system log. Another log entry is added after the ***X-Tools Server*** has verified whether the connection is valid although the port information is mismatching, which can be the case when VPNs or other methods of port translation are being used.

BUGFIX (Wrong coloring of Slider Bars)
The color of each slider always shall match the color of the topmost data which is assigned to the slider within the legend. In some situations, this rule was not kept.

BUGFIX (Possible Errors with the Analyzing Functions GenAlrmBnd() and MonAlrmSpm())
The Analyzing Function MonAlrmSpm() did not recognize all changes of the alarm bands which were created by GenAlrmBnd() - as a result, MonAlrmSpm() could operate on outdated alarm bands. This could occur especially (but not only) also in case GenAlrmBnd() and MonAlrmSpm() were running with different cycle times and/or in case GenAlrmBnd() was enabled and disabled with an interval different to the cycle time of MonAlrmSpm().

BUGFIX (Lost Information about Storage Profiles in Status "Triggering")
After closing and re-opening of the **STS Explorer**, the icon of Storages Profiles never showed whether it is currently triggering or not. Instead, the standard icon for "Started" was displayed.

BUGFIX (Possibility of permanent suspend of Device Profiles after a Change of the System Time)
In case a change of the system time took place while a detaching and re-attaching of devices was going on it could happen that all affected Device Profile suspended and did not resume ever again.

BUGFIX (Not-empty Directories can't be deleted via the MMS Explorer)
Deleting of directories which contained files did not work via the MMS Explorer. Empty directories were deleted properly but stayed present within the MMX.

BUGFIX (Memory Leak during the detach of simulated Device)
Every attach of a simulated device caused allocation of some small amount of memory which was not freed again at the moment of the detach of the simulated device. In case of big amounts of attaches and detaches of simulated devices the amount of not-freed memory could become significant.

BUGFIX (Possible Crash when attempting to edit the Cells of empty Columns within Tables)
A double click into the cell of an empty (typically rightmost) column within a table could result in a crash of the ***X-Tools Client***.

BUGFIX (Possible Crash during the Start of Device Profiles which contain invalid Ring Buffer Sizes)
In case the currently to-be-started Device Profile contained an invalid (too low or too big) ring buffer size, the ***X-Tools Server*** could end up in a crash.

BUGFIX (Unwanted Search within the System Log Viewer)
After pressing of the “Clear Log Entries” button, another search was performed and the “Find Results” table could be updated although this is not wanted in this situation.

BUGFIX (Improper Log Entry from the Analyzing Function FormatString())
In case the Analyzing Function FormatString() was called in sequential operating mode with a data as parameter, the resulting error message did not point out the real reason of the error.

BUGFIX (Possible Memory Leak in Combination with simulated Devices)
Every attach of a simulated device could cause a small memory leak. In case of frequent attaching and detach of simulated devices, a rising of the used memory could be observed.

BUGFIX (Possible Crash when loading of multiple offline Data Files with “Interval only”)
A crash could occur in case multiple offline data files were loaded simultaneously with a loading mode of “Interval only” and when the ***X-Tools Server*** was re-initialized before the “Loading Progress” dialog disappeared.

BUGFIX (Possible Loss of configured Locations in case of low Memory Conditions)
In case the internal initialization of a location failed (either because of low memory conditions or because of other effects), this location was removed from the file location file permanently.

BUGFIX (Possible Crash in Combination with Device Profiles for CTN WatchGuard T001 Devices)
In case the CTN WatchGuard T001 was running in “Watchdog” operating mode and when it was monitoring the current Storage Profiles, the ***X-Tools Server*** could end up in a deadlock and a following crash.

BUGFIX (Missing Update of the Example Row within the “Data Style” Dialog of Monitoring Charts)
After pressing of the “Apply” button, the preview within the example row was not updated.

BUGFIX (Possible Log Spam in case of missing Licenses for SIMATIC Devices)
In case a Device Profile for a SIMATIC device was started and no license was available, the Device Profile suspended and attempted to resume each 10 seconds, where each attempt to resume caused another log entry. Now, the Device Profile suspends and does not resume until the Device Profile File is changed.

BUGFIX (Correcting of Analyzing Scripts from the Example Location)
The following Analyzing Scripts from the example location caused constant log entries about too small ring buffer sizes when they were started: ConvVToB1D 01, GenAlrmBnd 01, GetBffrM 01, H2D 01 and Rsmpl 01.

BUGFIX (Correcting of Analyzing Scripts from the Example Location)
The Analyzing Script “Mux 01” from the example location was unable to run properly and suspended immediately when it was started.

BUGFIX (Correcting of Analyzing Models and Analyzing Scripts from the Example Location)
The Analyzing Model “TLC 02” and the Analyzing Script “TLC 02” from the example location did not output any value.

BUGFIX (Wrong Begin Time within the Header of exported CSV Data)
The begin time within the header of exported .csv files could be point to a point in time which is before the real begin time.

BUGFIX (Analyzing Functions which contain Parameters as Input Arguments could not be used within Time Slice based Analyzing Scripts)
An internal error within the parsing of input arguments let the interpreter think that somebody wants to change the constant input argument. Changing of constant input arguments is not allowed, therefore the Analyzing Script was suspended with an according log entry.

BUGFIX (Possible Crash because of uninitialized Pointers within Analyzing Functions)
The following Analyzing Functions could cause a crash because the could access uninitialized pointers in certain situations: ConvSpm(), GenAlrmBnd() and TLC().

BUGFIX (Opening of multiple Dialogs from the X-Tools tray icon)
It was possible to call the context menu of the X-Tools tray icon multiple times and to open multiple ("X-Tools Server Status" and "X-Tools Connectivity") dialogs via this way.

BUGFIX (Possible Crash from storing of Extended Data Types)
A crash could occur in cases where the amount of memory which is needed to keep one probe of an extended data type (e.g. a spectrum or a 1-/2-dimensional buffer, …) exceeded the currently configured STS allocation size.

BUGFIX (Possible Hang within Interface Profile Editors)
A hang of the ***X-Tools Client*** could occur in case the last, empty line of an Interface Profile was first copied via <Ctrl> <C> and pasted afterwards.

BUGFIX (Possible Crash when copying of Configuration Files between X-Tools Servers)
A crash could occur in case the source server from which the Configuration File shall be copied disappeared before the paste operation was started.

BUGFIX (Possible Inconsistencies within User Functions)
The content of User Functions could become inconsistent in case the number of configurable arguments of a contained Analyzing Function was changed. As a result, the ***X-Tools Client*** could crash at the moment of saving or the assignment of the inputs and outputs of the User Function could become wrong.

BUGFIX (Frequent saving of the Contents of the Global Options Editor could clear the Entries of Combo Boxes)
In case the contents of the Global Options Editor were saved frequently, the combo boxes could become empty after a while.

BUGFIX (Possible Corruption of a User Function File)
In case the first output interface of a User Function File was deleted, the User Function File could be corrupted.

2.5 X-Tools V 03.04 -> X-Tools V 03.05

The following changes have been introduced in ***X-Tools*** V 03.05:

FEATURE (Additional Analyzing Function ClcXYEnv())
The new Analyzing Function ClcXYEnv() can be used in order to calculate envelopes for x/y data.

FEATURE (Additional Analyzing Function MonXYEnv())
The new Analyzing Function MonXYEnv() can be used in order to monitor whether the values of the current x/y input data are within the specified envelopes.

FEATURE (Additional Analyzing Function ConvB1DToTS())
The new Analyzing Function ConvB1DToTS() can be used in order to convert the values of a 1-dimensional buffer into a time series.

FEATURE (Additional Analyzing Function SpmAdd())
The new Analyzing Function SpmAdd() can be used in order to increase (or decrease) all amplitudes of the provided input spectrum.

FEATURE (Additional Analyzing Function MonSpmEnv())
The new Analyzing Function MonSpmEnv() can be used in order to monitor whether the values of the current input spectrum are within the specified envelopes.

FEATURE (Additional Analyzing Function ConvPToV2D())
The new Analyzing Function ConvPToV2D() can be used in order to convert polar coordinates into a 2-dimensional vector.

FEATURE (Additional Analyzing Function ConvV2DToP())
The new Analyzing Function ConvV2DToP() can be used in order to convert a 2-dimensional vector into polar coordinates.

FEATURE (Additional Analyzing Function InV2D())
The new Analyzing Function InV2D() can be used in order to read a 2-dimensional vector from the system so that it can be used within the Analyzing Model/Analyzing Script.

FEATURE (Additional Analyzing Function OutV2D())
The new Analyzing Function OutV2D() can be used in order to write a 2-dimensional vector, which has been created within the Analyzing Model/Analyzing Script, to the system.

FEATURE (Additional Analyzing Function LoadData())
The new Analyzing Function LoadData() can be used in order to load data from offline data files and to make this data available as offline data.

FEATURE (Additional Analyzing Function AddV2D())
The new Analyzing Function AddV2D() can be used in order to add two 2-dimensional vectors.

FEATURE (Additional Monitoring Chart MTC Vector2D T001)
The new Monitoring Chart MTC Vector2D T001 can be used in order to visualize 2-dimensional vector data.

FEATURE (Automatic Reports)
Monitoring Views now can be configured to create reports automatically. Therefore, also Monitoring Views can be started now - a started Monitoring View creates a report of its contained Monitoring Charts whenever the specified trigger condition occurs. This functionality of automatic reports is performed completely by the ***X-Tools Server*** and does not need a connected ***X-Tools Client*** during runtime.

FEATURE (Fast Analysis via the MDS Explorer)
Within the ANS Explorer, a “Fast Analysis” location can be created now. All Analyzing Scripts which are present below this location can be called via the context menu entry “Fast Analysis” of the MDS Explorer. The currently selected (online or offline) data from the MDS Explorer is used as input for the chosen Analyzing Script.

FEATURE (Advanced File Associations)
X-Tools now registers its file associations (*.xtc, *.xts and *.wav) at Windows so that ***X-Tools*** is started automatically in case the user double-clicks onto or opens any of the files of ***X-Tools***.

FEATURE (Automatic Symbolic Name within the “Add Location” Dialog)
In case the value of “Symbolic Name” within the “Add Location” dialog is empty at the moment when a new path is chosen for the “Path” cell, the last directory name is inserted as default value for the “Symbolic Name”.

FEATURE (Automatic Selection of dropped items within AME Standard T001 and UFE Standard T001)
Whenever a new item is or multiple new items are dropped into the AME Standard T001 or UFE Standard T001, all of the newly dropped items automatically become selected after the drop. This allows to move, copy, … the newly dropped items easily.

FEATURE (Support for <Ctrl> + <f> within the System Log Viewer)
In case the System Log Viewer has the input focus at the moment and <Ctrl> + <f> is being pressed, the “Find String” cell within the “System Log Settings” table is put into editing mode and the new find string can be entered directly.

FEATURE (Adding of Information about installed Hotfixes to the System Log)
In case ***X-Tools*** detects a binary file which contains a hotfix, an according log entry is added to the system log.

FEATURE (Update of the MDS Explorer via <F5>)
In case the MDS Explorer has the input focus, <F5> can be pressed in order to re-read all of the displayed information about online and offline data from all of the currently connected ***X-Tools Servers***.

FEATURE (Detection of not synchronized System Times of Socket Devices)
In case two or more socket devices (e.g. ION SIMATIC S7 PN, ION SIMATIC TDC T001, …) are configured to share the same time domain, the ***X-Tools Server*** outputs a log entry in case it finds out that the system times of these devices are too far away from each other. In this situation, the time domain setting within ***X-Tools*** must be changed or the system time synchronization of these devices must be added/improved.

FEATURE (Increased Address Room for the X-Tools Server)
The ***X-Tools Server*** now supports the IMAGE_FILE_LARGE_ADDRESS_AWARE flag. This allows to use more memory in environments which have more then 2 GByte of working memory available. See the user manual for detailed information about how to gain more than 2 GByte of RAM for the ***X-Tools Server***.

FEATURE (Zooming within the AME Standard T001 and UFE Standard T001)
The currently opened Analyzing Model or User Function now can be zoomed within the AME Standard T001 and UFE Standard T001. This allows to keep a better overview also in case of larger Analyzing Models or User Functions.

FEATURE (Special Syntax for the local Configuration File Location)
Control Analyzing Functions like Start(), Stop(), MonCF(), … now can use a location name of “://” when they shall refer to a Configuration File which is located within the same location as the parent Analyzing Script of the Analyzing Function. This allows to create control scripts which are widely independent to the current symbolic name of their location.

FEATURE (Reports out of the AME Standard T001 and UFE Standard T001)
The context menus of the AME Standard T001 and UFE Standard T001 now provide the “Print Report” and

“Save Report” items which can be used in order to print or save a report of the currently opened Analyzing Model or User Function.

FEATURE (Restart of Configuration File)
The context menu of each started Configuration File now contains the entry “Restart” which can be used in order to restart (= stop and start) the Configuration File with one single operation.

FEATURE (Data Snapshot for complete Monitoring Views)
The “Store Data Snapshot” button from the tool bar of Monitoring Charts now can be used in order to store a data snapshot only for the current Monitoring Chart or for the whole Monitoring View.

FEATURE (Improvements of the X-Tools Server Interface (XSI))
The ***X-Tools Server*** now allows multiple XSI Clients to connect to it simultaneously. In addition, the compression of the data exchange between ***X-Tools Server*** and XSI Clients allows using of the available bandwidth more efficiently now (the compression is available only for XSI Clients of V 03.05 or higher).

FEATURE (Append and Overwrite for Output Analyzing Functions)
The output Analyzing Functions within Analyzing Models and Analyzing Scripts which produce offline data can be switched between “append” and “overwrite” now. “overwrite” behaves like in previous versions and overwrites already existing offline data with the results from the new calculation, whereas “append” adds the results from the new calculation to the already existing offline data.

FEATURE (Improved automatic Update of Analyzing Models and User Functions)
Previous versions of ***X-Tools*** were not able to update Analyzing Models and User Functions automatically in some cases when the new versions of the to-be-updated Functions were bigger than the currently used versions. Now, all Functions which are below or right to the to-be-updated Functions are moved to the bottom and/or to the right in case this is necessary.

FEATURE (Searching within the MDS Explorer)
A search functionality now allows to search for online data, online data categories, offline data and offline data categories within the MDS Explorer.

FEATURE (Searching within the ANS Explorer)
A search functionality now allows to search for Analyzing Functions and User Functions within the ANS Explorer.

FEATURE (Additional Configuration for Notifications via Email)
The new global option “Notification” from the “Improved Availability” group of the ***X-Tools Server*** can be used in order to configure whether the ***X-Tools Server*** shall attempt to send an email notification during the first restart after an abnormal termination.

FEATURE (Propagation of Configuration File States within Trees)
In case a directory or any of its sub-directories contains a started or a suspended Configuration File, the icon of the directory within the explorer tree of ***X-Tools*** shows an according icon. This indication allows to browse to the currently started/suspended Configuration File very fast.

FEATURE (Export of Data of Type “2-dimensional Vector” to CSV Files)
Also data of type “2-dimensional vector” can be exported to CSV files now.

FEATURE (Overview Dialog for Analyzing Functions and User Function)
Via the “Overview…” context menu item of each Analyzing Function and User Function from the ANS Explorer, the “Analyzing Function Overview” and “User Function Overview” dialogs can be called now. These dialogs are non-modal and can stay open while the rest of ***X-Tools*** can be used normally. They provide detailed information about an Analyzing Function/User Function and about all of its arguments, thus they are a kind of help information during the creation of Analyzing Models and Analyzing Scripts.

FEATURE (Automatic, temporary Update of Analyzing Models)
In case an Analyzing Model is started which contains outdated interface definitions, the Analyzing Engine attempts to update the Analyzing Model automatically and temporarily. When the update succeeds, the Analyzing Model is started and an according log entry is created.

FEATURE (Detection of Analyzing Functions from third Parties)
In case an Analyzing Function is detected by ***X-Tools*** which has not been provided by the SIPLUS CMS team but by a third-party developer, an according log entry is created by the ***X-Tools Server***. The log entry also provides the detailed version of the detected Analyzing Function.

FEATURE (Advanced Cursors within the MTC yn T001)
The newly added advanced cursors within the MTC yn T001 can be used in order to visualize and measure harmonics, subharmonics and sidebands of data.

FEATURE (Frequency Markers within the MTC yn T001)
The newly added frequency markers within the MTC yn T001 can be used in order to visualize and measure any frequencies of interest. A configurable Main Frequency Marker can be linked to a data like a rotary frequency and can be used in order to derive further information like defect frequencies, harmonics, subharmonics or sidebands directly from the current status of the monitored component.

FEATURE (Quality of Service for online Data)
Each online data now provides detailed information about the last moment in time until which it is valid. In case of different record modes (e.g. “Changes only”) and/or in case of very slow sampled data, this last moment in time can be far after the last timestamp within the ring buffer. Knowing the last moment in time, all following systems know exactly until which moment in time they can perform their processing. One of the benefits of this feature is that it now is possible to have multiple Analyzing Models/Analyzing Scripts in a row where always one Analyzing Model/Analyzing Script inputs data which was output by previous Analyzing Models/Analyzing Scripts.

FEATURE (Support for Databases from V 2.x of the SIPLUS CMS2000 System)
In addition to databases from V 1.x of the SIPLUS CMS2000 System, ***X-Tools*** now also can read the data from databases which have been created by V 2.x of the SIPLUS CMS2000 System.

FEATURE (Additional Analyzing Function ShowPath())
The Analyzing Function ShowPath() is able to determine the (absolute and/or symbolic) path to its parent Analyzing Model/Analyzing Script. The returned path can be used by following Analyzing Functions.

FEATURE (Storage IDs)
Storage IDs can be used within Storage Profiles now in order to add the current value of a data to the path and/or file name of the to-be-stored offline data.

FEATURE (Advanced Path and File Name Configuration for Storage Profiles)
The “Path Configuration” and “File Name Configuration” dialogs within the SPE Binary T001 now allow to configure the to-be-created directory paths and file names in a very flexible way.

CHANGE (Maximal Number of Alarm Band Inputs for MonAlrmSpm())
The maximal number of alarm band inputs has been increased from 16 to 32.

CHANGE (Support for Monitoring Views through Control Analyzing Functions)
The Analyzing Functions Start(), Pause(), Continue(), Stop() and WaitForCF() now also accept Monitoring Views as input argument.

CHANGE (Modification of the /openMVE Command Line Parameter)
In case there is an ***X-Tools Client*** running already, the specified Monitoring View is opened within this ***X-Tools Client***. All eventually already opened Monitoring Views which are not specified via /openMVF are closed automatically.

CHANGE (Removing of the Support for Devices)
The following devices are not supported by ***X-Tools*** any more: ION ARCNET Spy T001, ION CS31 Spy T001, ION PROFIBUS DP T001 and ION SIMOLINK T001.

CHANGE (Naming of X-Tools)
X-Tools has been renamed from “SIPLUS CMS4000 X-Tools” to “SIPLUS CMS X-Tools”.

CHANGE (Removing of the File “Skin.skn.xtc”)
The file which contained the skinning information for the ***X-Tools Client*** has been removed. The according information has been moved to the resources of X-Tools Client.exe.

CHANGE (Stop of the Data Streaming at the Moment of pausing of a Device Profile)
When a Device Profile is paused, the data streaming from the device to the ***X-Tools Server*** is stopped now in order to reduce the CPU usage through the ***X-Tools Server***. When the Device Profile is continued, the data streaming is restarted.

CHANGE (New Spacing within Standard Dialogs)
The spacing between controls has been reduced within the “Loading Progress”, “Export Progress” and “Storage Progress” dialogs in order to provide a more compact appearing. In addition, also the spacing of all message boxes has been reduced.

CHANGE (New Icon for Storage Profiles which are in Status “triggering”)
The icon for Storage Profiles which are ins status “triggering” has been changed from a small sandglass overlay to a fully purple icon.

CHANGE (Renaming of the “Default” Button)
The “Default” button has been renamed to “Restore Defaults”.

CHANGE (Correlation between the Order of Monitoring Charts and the order within the Cursor Tables)
The order of data within the cursor tables of Monitoring Views now is always directly dependent to the order of the currently present Monitoring Charts. The data from the Monitoring Chart in the upper left corner is shown topmost within the cursor table, the data from the Monitoring Chart in the lower right corner is shown bottom-most.

CHANGE (Changed Registry Path for the X-Tools Tray)
Previous versions of the setup of ***X-Tools*** have put the ***X-Tools Tray*** to the registry path of the local user - as a result, it was only started in case the user, who ran setup, logged in to Windows. The new version of the setup puts the ***X-Tools Tray*** to the path of the local system, in which case the ***X-Tools Tray*** is started when any user logs in to Windows.

CHANGE (Log Entry for the queuing of append/overwrite/export Operations)
Whenever an append, overwrite or export operation is started via the ODL Standard T001, an according log entry is created immediately. The log entry is added also in case another, longer-lasting ap-pend/overwrite/export operation is in progress at the moment.

CHANGE (Improved Format of Device Setup Files for ION SIMATIC TDC T001 Devices)
The format of Device Setup Files for ION SIMATIC TDC T001 devices has been optimized. Such Device Setup Files are now read and written about 10 times faster. In order to convert a Device Setup File from the old to the new format, open the Device Profile which uses the Device Setup, press the "…" button of the "Device Setup File" parameter within the "Device Profile Parameters" table and choose "Save As…". Overwrite the already existing Device Setup File in order to convert it to the new format.

CHANGE (Usage of the low Fragmentation Heap)
The ***X-Tools Client*** now uses the low fragmentation heap for all memory allocations. In case of applications with frequent allocation and freeing of memory (e.g. opening and closing of editors), the low fragmentation heap allows to run the application longer without running into low-memory conditions because of memory fragmenta-tion.

CHANGE (Removing of the "Info" Item from Trees)
The "Info" item has been removed from all trees of the ***X-Tools Client***. The information which was provided below the "Info" item so far is shown directly at the level of the former "Info" item now.

CHANGE (Improved Restart of Configuration Files after a Change of the System Time)
In case a change of the system time is detected now, all of the currently started Configuration Files of the ***X-Tools Server*** are restarted in a defined order. This approach reduces the number of errors during the restart which could occur because of unavailable data.

CHANGE (Reduced Memory Usage for the editing of Device Profiles for ION SIMATC TDC T001 Devices)
Opening of the Device Profile for an ION SIMATIC TDC T001 devices does not fill the whole "Address Book" tree any more. Instead, the tree is filled only when a branch is expanded through the user, which gives a signifi-cant smaller memory usage and faster loading times especially in case of bigger address books.

CHANGE (Improved storing of preceding and following Probes through Storage Profiles)
The rules for adding of preceding and following probes have been defined more clearly and the implementation has been updated in order to follow these rules.

CHANGE (Improved loading of offline Data Files with Gaps in between)
In case offline Data Files from different periods of time were loaded with the loading modes "Interval only" or "Changes and Interval", the loading attempted to fill also the gap between both intervals with values. This could cause significantly bigger offline data files on the one hand and provided a wrong impression about the values of the loaded data for the time interval of the gap (for this time interval, the system does not have any infor-mation available).

CHANGE (Moving to V 5.1 SP1 Update3 of the Automation License Manager)
The installer of X-Tools now installs V 5.1 SP1 Update3 of the Automation License Manager.

CHANGE (Improved CRC Checks for all Configuration Files)
The CRC of all Configuration Files is checked now before the file becomes available to ***X-Tools***.

CHANGE (Changed minimal Ring Buffer Size within the Global Options of the X-Tools Server)
The minimal value for the "Default Ring Buffer Size" within the global options of the ***X-Tools Server*** has been changed from "1000" to "10".

CHANGE (Notification about unavailable Input Analyzing Functions)
In case a data is dragged from the **MDS Explorer** and dropped into the **AME Standard T001** or **UFE Standard T001**, the status bar of the ***X-Tools Client*** now provides a short information in case there is no input Analyzing Function available which could be inserted for the dropped data.

CHANGE (Review of the Log Entries from the X-Tools Service)
All log entries of the ***X-Tools Service*** have been reviewed in order to achieve a more common look and feel and improved quality of the provided information.

CHANGE (Modified Detection of Configuration File States through Start() and WaitForCF())
In case the Analyzing Functions Start() and WaitForCF() wait for the stop of a Configuration File, a resume attempt (which can cause a stop and a start of the target Configuration File) is not treated as stop any more. In addition, the status code which is returned by these Analyzing Functions provides basic information about whether the target Configuration File was running normally before the stop or not.

CHANGE (No output of the calculated Filter Frequencies through the Analyzing Function Orbit())
The Analyzing Function Orbit() does not output the calculated filter frequencies any more because there are use cases where the filters have to be recalculated all the time and these use cases caused constant adding of log entries. In addition, the Analyzing Function does not output a log entry more often than once per minute in case it was unable to calculate the filter frequencies with a damping of greater than -35 dB.

CHANGE (Changes about the automatic Update of Analyzing Models and User Functions)
In case the Analyzing Model or the User Function which shall be opened by the AME Standard T001 or UFE Standard T001 contains functions with conflicting interface definitions, the displayed message boxes do not contain a list of the outdated functions any more. In addition, only one message box is displayed in case of updates which can be completed successfully (instead of two message boxes in the past). The AME Standard T001 and the UFE Standard T001 also highlight functions with outdated interfaces now through a red background color for their lower rectangle. Finally, in case one function can not be updated the update is not cancelled as a whole - instead, the AME Standard T001 and the UFE Standard T001 continue to updated all other functions.

CHANGE (Remembering of the last used Target Name through the System Log Viewer)
The System Log Viewer now remembers the last used Target Name whenever it is closed. In case it is opened via the “System Log Viewer” button from the menu bar of the Main Management System afterwards, it automatically connects to the last used Target Name again.

CHANGE (Adding of the “Restore Defaults” Button to the “Select Style” Dialog)
The “Restore Defaults” button now is available to the “Select Style” dialogs of all Monitoring Charts and allows to set all settings back to the values which are delivered together with X-Tools.

CHANGE (The Index of the Analyzing Function DeMux() starts at 0 instead of 1)
The index of the Analyzing Function DeMux() now starts with 0 instead of 1.

CHANGE (Stopping of Monitoring Views and Storage Profiles which operate on offline Data)
Whenever a Monitoring View or a Storage Profile which uses offline data as input would have to suspend because of any reason, the according Monitoring View or Storage Profile now suspends.

BUGFIX (Possible Crash in Case exactly 16 Alarm Band Inputs were used for MonAlrmSpm())
An improper memory allocation could cause a crash in cases where all 16 alarm band inputs were used.

BUGFIX (Wrong Index Generation in case of the Precision “Boolean” within GetVFrmB1D())
In case the precision was configured to “Boolean”, the index was calculated wrongly. As a result, the values for the Boolean outputs did not use the proper values from the input data and the outputs provided wrong results.

BUGFIX (Doubled Start Events within Offline Data Files)
In case some offline data was stored via a Storage Profile, the resulting offline data files could contain double start events.

BUGFIX (Possible Error within high-precision decimal Operations)
The handling of high-precision decimal calculations was not thread-safe in all cases. There was a small chance to see e.g. wrong visualizations within the **Monitoring System** because of this issue.

BUGFIX (Possible suspend of Device Profiles for Software I/O-Nodes after a Time Change)
In case a change of the system time takes place while the Device Profile for a software I/O-Node (e.g. ION SIMATIC S7-300 T001, ION SIMATIC S7 PN, …) is running, the Device Profile could suspend forever (respective until it is stopped and started manually again). The reason was a race condition between releasing of the necessary license (because of the stop of the Device Profile during the recovering from the time change) and the attempt to lease the license again (during the restart of the Device Profile during the recovering from the time change).

BUGFIX (Unwanted stop of the Data Streaming to the XSI)
In case the data streaming for a data was active already and XSIStartOnlineDataStreaming() was called twice after each other within very little time, it could happen that no more notifications about data values were sent at all. From the point of view of the application which used the XSI it looked like the data streaming was stopped.

BUGFIX (Possible Crash within the DPE ION SIMATIC TDC T001)
In case the information about the address book of the ION SIMATIC TDC T001 was not consistent there was a possibility to end up in a crash of the ***X-Tools Client***.

BUGFIX (Corruption of User Function Files through the UFE Standard T001)
In case the Analyzing Function which was assigned to the first output of the User Function was deleted, the internal state of the complete User Function could become corrupted and the User Function became unusable.

BUGFIX (Possible Log Entry Flood in case the Hard Disk is full)
In case the hard disk to which the log file is being written became full, a lot of log entries about lost log entries could appear within the **System Log Viewer** of a connected ***X-Tools Client***.

BUGFIX (Unwanted copy of Configuration Files)
In case a Configuration File was dragged with the mouse and dropped onto its own parent directory, a copy of the dragged Configured File was created. Now, an according error message is displayed instead of the copy.

BUGFIX (Wrong Log Entries during the suspend and resume of Analyzing Models/Analyzing Scripts)
In case an Analyzing Model or an Analyzing Script was suspended, the log entry sometimes reported a stop of the Analyzing Model/Analyzing Script.

BUGFIX (Wrong Log Entry after appending of offline Data Files of mismatching Data Type)
In case the to-be-appended offline data files contained a data type which was different to the data type of the already present offline data with matching name, there was a log entry that the header of the file could not be read.

BUGFIX (Possible Hang of the X-Tools Client in case of missing DLLs of the X-Tools Server)
In case the ANE.dll, MTE.dll or STE.dll binaries of a connected ***X-Tools Server*** were missing, the ***X-Tools Client*** could hang or react very slow.

BUGFIX (Wrong Detection of wrong Interface Types)
In case an Interface Profile had been started and stopped, no Interface Profile of identical name could be started for another interface type.

BUGFIX (Not working implicit Outputs within Time Slice based Analyzing Scripts)
Implicit outputs (like "~'A' = Bffr(GenWF(), 1024, 0, false, true);" did not work within Analyzing Scripts in case the internal output Analyzing Function was different to Out().

BUGFIX (Time Domain mismatch within the "Advanced Append/Overwrite/Export" Dialogs)
In case the time domain which was specified within the Advanced Append/Overwrite/Export dialogs did not match the time domain of the to-be-appended/overwritten/exported offline data file, the append/overwrite/export still attempted to process the offline data file. Now, an according error log entry is created instead.

BUGFIX (Wrong Behavior of paused Interface Profiles)
Paused Interface Profiles of type "Socket T001" or "Serial Port T001" did not behave correctly. Now, devices are not being disconnected at the moment of pausing of their Interface Profile and while the Interface Profile is paused, no new connections to devices are being established.

BUGFIX (Device Profiles for OPC UA Devices don't work without a configured Input Data)
Device Profiles for OPC UA devices could not be started in case they did not contain any configured input data. Now it is possible also to create Device Profiles which contain only output data.

BUGFIX (Suspended Device Profiles of Software-I/O-Nodes after a Change of the System Time)
In case Software-I/O-Nodes (e.g. ION SIMATIC S7-PN, …) were attached to ***X-Tools*** and streaming data at the moment of a change of the system time, it could happen that the according Device Profiles suspended and did not resume ever.

BUGFIX (Missing Start Value in case of the Analyzing Function Out() with a setting of "Changes Only")
In case the value of "Record Mode" was configured to "Changes only", the first value was not output. In case all values after the first one have the same value, no data values were output at all.

BUGFIX (Resurrection of Log Entries)
In case the contents of the "Log Entries" table within an AME Standard T001 or ASE Standard T001 were cleared via the "Clear Log" context menu item, all log entries of the currently executed Analyzing Model or Analyzing Script still could re-appear at the moment when the Analyzing Model or Analyzing Script was stopped.

BUGFIX (Slow scrolling within big System Log Files)
The speed of the scrolling within the System Log Viewer via the <Cursor up>, <Cursor down>, <Page up> and <Page down> keyboard keys has been improved.

BUGFIX (Missing Detection of Changes through the UFE Standard T001)
The UFE Standard T001 did not detect that its currently opened User Function was changed in case an input or output interface was added or removed.

BUGFIX (Possible Corruption of User Functions)
In case an Analyzing Function, which was connected to an output interface, was removed from the User Function, the whole User Function could become corrupted.

BUGFIX (The Visualization within the MTC Orbit T001 might become smaller and smaller)
Whenever the size of the MTC Orbit T001 was changed, the scaling of the contained orbit was recalculated and the displayed orbit became smaller and smaller.

BUGFIX (Possibly slow Creation of new offline Data Files)
In case the memory usage through the ***X-Tools Server*** was close to the maximal allowed value, the creation of new offline data files through a Storage Profile could last very long (e.g. more than 150 seconds for 1500 files).

BUGFIX (Unwanted expand/collapse after <F5>)
In some cases, updating of the contents of an explorer tree via <F5> also has changed the expand/collapse state of items.

BUGFIX (Unwanted append of offline Data from different Time Domains)
It was possible to append offline data with identical name from different time domains. Undefined time intervals which were covered through the resulting offline data.

BUGFIX (Impossible pausing within Monitoring Charts)
It was impossible to pause the visualization within Monitoring Charts in case one of the data from the Monitoring Chart was currently not available.

BUGFIX (Unwanted continue after pausing within Monitoring Charts)
In case a Monitoring Chart contained data with only a few values, the Monitoring Chart could automatically continue the visualization of online data a few seconds after it had been paused.

BUGFIX (Wrong automatic Update of User Functions)
In case a User Function contained another User Function whose interfaces have changed, the automatic update of the parent User Function could fail and result in an invalid internal status of the parent User Function.

BUGFIX (Too long connecting to ION SIMATIC TDC T001 Devices)
In case the first connecting attempt to an ION SIMATIC TDC T001 device failed, also the following connection attempts had a bigger chance to fail. As a result, it could take up to minutes until the connection could be established successfully.

BUGFIX (Possible Crash within the MVE Standard T001)
It was possible to end up with a crash in case the “Time Domain” parameter from the “Monitoring View Parameters” table was changed while the data of one or multiple MTCs was not available.

BUGFIX (Deleting of a Location may not delete the Root Directory)
When a location was deleted it could happen that the empty root directory of the location remained present.

BUGFIX (Possibly missing Values in case of Action based Analyzing Models and Analyzing Scripts)
Action based Analyzing Models and Analyzing Scripts could oversee values at the beginning of the processing in case there was no value at the exact moment of the start time of the Analyzing Model/Analyzing Script.

BUGFIX (Missing Log Entries about Locations which become available or unavailable)
There were no log entries at the moments when an already present location became unavailable and in case a currently unavailable location became available again.

BUGFIX (Possibility to choose a wrong Server for the Selection of a to-be-used Loading Profile)
The ODL Standard T001 allowed to choose the Loading Profile from another ***X-Tools Server*** via its Advanced Append, Advanced Overwrite and Advanced Export dialogs. This is wrong, because the Loading Profile from another ***X-Tools Server*** is not available during the actual append, overwrite or export operation.

BUGFIX (Too early Resume)
Suspended Monitoring Views, Analyzing Models, Analyzing Scripts and Storage Profiles attempted to resume too early in some cases. For example, when a Device Profile attempted to resume the other Configuration Files also attempted to resume before it was granted that the resume will succeed - as a result, all other Configuration Files could attempt to resume and suspend again very frequently in situations where the resume of the Device Profile failed to succeed.

BUGFIX (Wrong Description Name within Explorer Trees)
Within the explorer trees of ***X-Tools***, all Configuration Files contained a sub-item of name “Profile Description”. For Monitoring Views, Analyzing Models, Analyzing Scripts and User Functions this was wrong and has been changed to “View Description”, “Model Description”, “Script Description” and “Function Description”.

BUGFIX (Unwanted Stop of Storage Profiles)
In case a Storage Profile was started which did not contain any enabled definition within its “Data” table, the

Storage Profile was stopped automatically. Instead, such a Storage Profile becomes suspended now and attempts to resume automatically in case its file at the disk is being changed.

BUGFIX (Wrong Resolution of the Analyzing Function Impulser())
The configurable times of this Analyzing Function were interpreted as pure Integers internally. As a result, the created result always had a length of a multiple of 1 second, shorter impulses were not possible.

BUGFIX (Wrong Handling of Boolean Input Buffers through the Analyzing Function OutTCP())
The Analyzing Function always transmitted 8 Boolean values as one byte, and the byte could get only the values 0 or 1. Now, each Boolean value is transmitted as separate byte and again can get the values 0 or 1.

BUGFIX (Too high CPU Usage for the Visualization within the MTC yx T001)
The MTC yx T001 used too many CPU resources in case it had to visualize online data which was recorded with high sample rates (e.g. 192 kHz). The CPU usage for this use case has been reduced significantly so that also very fast online data can be visualized by the MTC yx T001.

BUGFIX (Possible Hang of the X-Tools Client because of the CTN WatchGuard T001)
The Device Profile of CTN WatchGuard T001 devices could hang in a way which also could cause the ***X-Tools Client*** to hang after the user tried to start or stop the Device Profile.

BUGFIX (Inaccurate Code Positions within Error Messages from Analyzing Scripts)
In previous versions of ***X-Tools***, Analyzing Functions reported a code position which matched the start of the Analyzing Function always. Now, the system can report the exact code position of the argument which has caused the error. In case the error is not caused by a certain argument, the system still returns the start of the Analyzing Function as code position.

BUGFIX (Missing Offset Compensation for Devices of type ION AnalogInput T001)
The internal offset compensation for Devices of type ION AnalogInput T001 did not work, thus the device calibration which is performed during the production was not in effect.

BUGFIX (Inconsistent "File modified" Flag within Monitoring Views)
Zooming, shifting and scaling operations sometimes caused the "file modified" flag to be set and sometimes not. Now, any kind of zooming, shifting and scaling does not set this flag.

BUGFIX (Possibly missing Output of Values through User Functions)
There was a possibility to end up with an output interface for a User Function which did not receive any value during the execution of the User Function. It was needed to delete and re-create such output interfaces in previous versions of ***X-Tools***. Now, the situation should not occur any more and already stored, wrong User Functions from previous versions of ***X-Tools*** are corrected automatically during the execution.

BUGFIX (Possible Race Condition within the Analyzing Function InOrdRsmpl())
When the Analyzing Function InOrdRsmpl() was used for online data calculations, it may have been unable to determine the start place of the revolution.

BUGFIX (Wrong automatic scaling within the MTC Orbit T001 and MTC Vector2D T001)
The automatic scaling of the axes of the MTC Orbit T001 and of the MTC Vector2D T001 was sometimes too slow to update to the correct values. In addition, the origin could get lost (to a position different to 0/0) in case the aspect ratio was unlocked and both axes were configured to auto-scale independently.

BUGFIX (Wrong automatic scaling within the MTC yt T001)
The automatic scaling of the y-axis of the MTC yt T001 could fail in case the difference between the minimal and maximal to-be-displayed axes values was smaller than the minimal allowed scaling interval.

BUGFIX (Storage Profiles which store offline Data may not stop)
In case a Storage Profile was configured to store offline data, there was a possibility that the Storage Profile did not stop after it has finished to process all offline data. In this situation, the Storage Profile stayed in status "running" or "triggering" forever.

BUGFIX (Unclean Termination of Socket Connections)
In case the Interface Profile for the socket interface was stopped while the socket devices were streaming data, the connection could be terminated without a prior notification to the devices. Therefore, the devices may have continued to stream data until they ran into their own timeout for the connection.

BUGFIX (Wrong Timezone within exported .csv Files)
In case the timestamp format for the export to .csv was configured to "Date+Time+ns (Local Time)", the timestamps of all values were created in local time but the two timestamps within the header row were still in GMT.

BUGFIX (Possibly wrong Stop Time of offline Data Files)
In case a Storage Profile was configured to store offline data from the **MDS Explorer** to offline data files with a stop trigger of type "by Timer" or "by Date and Time", the stop time of the resulting offline data file could be iden-

tical to the stop time of the original offline data. This is wrong in cases where the stop trigger has fired before the stop time of the original offline data.

BUGFIX (Possibly wrong Default Names of Monitoring Charts)
Although the name of each **Monitoring Chart** must be unique within its Monitoring View, the **MVE Standard T001** could generate default names for new **Monitoring Charts** which were not unique.

BUGFIX (Improved Detection of Logins under Microsoft Windows 7)
Microsoft Windows 7 tends to notify all running applications about a change of the system time at the moment when somebody logs in via Remote Desktop. There is no actual change of the system time in this case, thus the ***X-Tools Server*** catches this event and does not restart all of its measurement tasks in this situation (restarting of all measurement tasks is the standard reaction to a change of the system time).

BUGFIX (InB2D() did not support all types of 2-dimensional Data)
2-dimensional data with precisions different to “Decimal64” could not be input by the Analyzing Function InB2D() – as a result, the parent Analyzing Program suspended when it detected such a data at its input.

BUGFIX (InB1D() did not support all types of 1-dimensional Data)
1-dimensional histogram data with precisions different to “Decimal64” could not be input by the Analyzing Function InB1D() – as a result, the parent Analyzing Program suspended when it detected such a data at its input.

BUGFIX (Possibly missing Vales at the End of each stored offline Data File)
The last values before the end of the stored offline data file could be missing. The biggest effects of this behavior could be seen within offline data files which should contain a post trigger time, because there were no values stored during the post trigger time in some cases.

BUGFIX (Possible Crash in case of Analyzing Models or Analyzing Scripts which contain more than one Instance of the Analyzing Function MonLog())
An internal race condition could cause a crash in case the Analyzing Function MonLog() was used more than once within an Analyzing Model or Analyzing Script.

BUGFIX (Too early return of the Analyzing Function Start())
In case the Analyzing Function Start() was configured to wait until its to-be-started Configuration File has entered the status “stopped” again, it sometimes could return also after a suspend and resume of its to-be-started Configuration File. In this case, the to-be-started Configuration File still could be in status suspended or started at the moment after Start() has returned.

BUGFIX (Unwanted suspend of sequential Analyzing Scripts which call Analyzing Functions like Start())
In case an Analyzing Function like Start() has returned an error code (e.g. because its to-be-started Configuration File could not be started), the parent Analyzing Script was suspended. After the suspend, it could start again from the beginning, which caused the same suspend at the same place in most cases. Now, the parent Analyzing Script does not suspend any more in case Analyzing Functions like Start() return an error.

BUGFIX (Possible Crash after exporting or storing of offline Data)
A crash could occur in case offline data of certain spectrum data types was exported or stored via the **MDS Explorer**.

BUGFIX (Wrong Handling of the “Reset” Input through the Analyzing Function TLC())
In case the “Reset” input argument of the Analyzing Function TLC() became true, the Analyzing Function has reset too much of its internal state information. As a result, the input data from the first cycle after “Reset” became false again was lost.

BUGFIX (Export to DIAdem did not work via the MDS Explorer)
In case the export of offline data to the DIAdem file format was started via the **MDS Explorer**, the resulting file could be of 0 bytes size (contrary, exporting via the **ODL Standard T001** worked properly already).

BUGFIX (The Interpolation Mode “None” does not work properly in Action-based Operating Modes)
In case the interpolation mode of the input Analyzing Functions InB1D(), InB2D() and InSpm() was “None”, these inputs did not return any values in action-based operating modes.

BUGFIX (Possible wrong Width of Screenshots out from Monitoring Views)
In case the width of a Monitoring View at the moment of the creation of the screenshot was smaller than the allowed minimal width, the created screenshot could contain additional elements from outside the Monitoring View.

BUGFIX (Possible wrong Position of Controls within the “Chart Styles” Dialogs)
In case the DPI-setting of Windows was bigger than 100 % (or 96 DPI), the position of the controls within the “Chart Styles” dialog could be shifted. In this situation, no editing was possible within this dialog.

BUGFIX (Wrong Group for new t-Axes within the MTC yt T001)
In case a new MTC yt T001 was created through dragging of a new data from the MDX Explorer, the newly

dropped could be put onto a new t-axis although it should match the already existing t-axis. This issue could happen only in case the new MTC yt T001 was opened within a Monitoring View had been opened from an existing file previously.

BUGFIX (Possible Error within the Conversion of absolute to relative Timestamps)
The output data of Analyzing Models and Analyzing Scripts which have offline data with absolute timestamps as input and offline data with relative timestamps as output could be empty in case of action-based operating modes.

BUGFIX (Possible wrong Determination of the first Timestamp of Analyzing Models and Analyzing Scripts)
In case the configured cycle time was bigger than 1 second, the first timestamp might not be set to a deterministic value. Now, the first timestamp always is a multiple of the configured cycle time since 1970-01-01 00:0:00 GMT.

BUGFIX (Possible suspending of big Analyzing Models or Analyzing Scripts during the Startup)
In case the loading of all contained Analyzing Functions and User Functions took more than a few seconds, Analyzing Models and Analyzing Scripts could suspend directly after this loading because the last calculated value was too old. Now, the first calculation starts not at the moment of the start but at the moment after the successful loading of all Functions and therefore also very big Analyzing Models and Analyzing Scripts can start without suspending.

BUGFIX (Delayed Initialization within the Analyzing Function TLC())
The Analyzing Function TLC() did not perform a calculation during the first time slice at which its InReady argument was true – instead, the calculation always started at the next cycle and the first time slice was somehow wasted.

BUGFIX (Possibly missing Data after Data Snapshots)
In case a Monitoring Chart contained both online and offline data, the created data snapshot may contain only the present online data and wrong log entries about the present offline data may appear within the System Log.

BUGFIX (Possibly missing parallel storing through Storage Profiles which have offline Data as Input)
Storage Profiles which use offline data as input were not able to perform more than 2 storings in parallel, even in case the start trigger data contained additional start events.

BUGFIX (Wrong Format of the .csv Export of 2-dimensional Buffers)
The values in x and z direction where mixed for the .csv export of 2-dimensional buffers, which could lead to wrong values within the exported .csv file.

BUGFIX (Files and Directories can not be deleted from Offline Data Locations of Type ".csv")
Via the ODL Standard T001, it was not possibly to delete files and directories from offline data locations of type ".csv".

BUGFIX (Possibly missing Value within Offline Data Files)
In case a Storage Profile was configured to use offline data as input, the created offline data file could be stored without the last value from the original offline data. This behavior occurred in case the last value of the input data was exactly at the moment of the stop time of the data.

BUGFIX (Unwanted Changes within the "Start Event" and "Stop Event" Tables of the SPE Binary T001)
Whenever a new data was dropped onto the "Start Event" and "Stop Event" tables of the SPE Binary T001, the value of the "Threshold Type" was automatically changed back to the default value.

BUGFIX (Dropping of a lot of Data into the Monitoring System may not show all of the dropped Data)
In case more than 32 data were dropped into the Monitoring System, multiple Monitoring Charts were opened – this is correct. However, only the first Monitoring Chart got some data inside, all other Monitoring Charts remained empty.

BUGFIX (Unwanted moving of Categories within the MDS Explorer)
In case a category should be copied from the "Online Data" branch of the MDX Explorer to the "Offline Data" branch of the MDS Explorer (or vice versa), a move operation was performed instead.

BUGFIX (Possible Crash of the X-Tools Server)
In case a Storage Profile was configured to a Storage Mode of "Interval only", the ***X-Tools Server*** could crash in case the Storage Profile suspended at some moment and was stopped afterwards.

BUGFIX (Not working automatic Update of User Functions)
In case the input interface of a User Function was created for an input argument of an Analyzing Function which was after a configurable input argument of this Analyzing Function, the automatic update of the User Function failed during the opening within the UFE Standard T001.

BUGFIX (Missing Alignment of Measurement Cursors within the MTC yt T001)
In cases with multiple MTC yt T001 within one Monitoring View, the cursor lines could be shifted a little bit away from each other after zooming operations.

BUGFIX (Wrong Number of Values within the Info for Offline Data Files)
In some cases the information about offline data files, which is visible within the **ODL Standard T001**, showed a number of values which was 1 or 2 too high.

BUGFIX (Wrong last Probe within Offline Data Files)
In case there was a value with a timestamp at the moment of the stop of the offline data file, this probe may have been not added to the offline data file. Instead, the first probe after the stop time was added to the offline data file.

BUGFIX (Missing first Probes within Offline Data Files)
In case there was a value with a timestamp at the moment of the start of the offline data file, the first probe may have been not added to the offline data file.

BUGFIX (Renaming of Categories within the MDX)
In case the name of a category should be renamed, the number in brackets (which contains the number of data below this category) also could be edited.

BUGFIX (Possibly improper Memory Calculations)
In case of PC configurations with more than 4 GByte of installed physical RAM, the calculation of the memory which is available for the ***X-Tools Server*** could be wrong. In such a case, the ***X-Tools Server*** may have refused to start additional Configuration Files although there would have been enough memory available.

BUGFIX (Possibly not-working loading of .csv Files)
In case append or overwrite was called multiple times for the loading of .csv files, the second and all following calls could fail and did not find any .csv files which could be loaded.

BUGFIX (Possibly wrong Stop Time within the Header of exported CSV Files)
In case the **Advanced Export** dialog was used for the exporting of data, the stop time within the header of the exported file could be wrong in case only a part of the available interval of the present offline data was exported.

BUGFIX (Forwarding of Commands to wrong Locations)
In case the symbolic name of one Configuration File location (e.g. “Location”) was equal to the beginning of the symbolic name of another location (e.g. “Location X”), calling of commands like “Start” or “Stop” at directories of the first location could issue these commands also at directories of the second location.

BUGFIX (Repeated renaming of Configurations Files could fail)
In case multiple Configuration Files of identical name were created and renamed repeatedly, the rename operation could become blocked after some iterations.

BUGFIX (Values with a Timestamp of 0 were not stored by the Storage System)
In case an offline data with relative timestamps contained a timestamp of 0, this probe was ignored by the Storage System and was not added to the current offline data file.

BUGFIX (InOrdRsmpl() could cause a Crash)
In case the input data of the Analyzing Function InOrdRsmpl() had a data type different to Decimal64, the function could end up in a crash.

BUGFIX (InOrdRsmpl() may not be able to initialize properly)
In case the input data for InOrdRsmpl() was not present at the moment of the start of the Analyzing Model/Analyzing Script, InOrdRsmpl() had a chance to initialize in a wrong way. As a result, it may not have produced any output afterwards.

BUGFIX (The Output of InOrdRsmpl() may be too inaccurate)
In case an interpolation mode of “Lines” was configured, the resampling within InOrdRsmpl() could produce inaccurate results. The difference between the input data and the output data of InOrdRsmpl() could be seen clearly within the Monitoring System in this case.

BUGFIX (Possibly missing Files after a Data Snapshot)
In case a data snapshot from the Monitoring System had to store multiple files of identical name at the same time, it could happen that only the first of these files was created. Now, a unique file name is granted for every offline data file which is created by the data snapshot.

BUGFIX (Format of Log Entries from Triggers about offline Data with Relative Timestamps)
The format of the relative times within the log entries about (start and stop) triggers was wrong - the determined timestamp was formatted as absolute time. Now, the correct format is used in case the timestamp format shall be relative.

BUGFIX (Incomplete Initializations after opening of a Storage Profile)
In case a Storage Profile was opened within a **SPE Binary T001** already and another Storage Profile was dropped into the already present **SPE Binary T001**, some settings from the first Storage Profile could remain present. For example, in case the first Storage Profile had a “Trigger Data Type” of “Numerical”, this value stayed “Numerical” even in case the “Trigger Data Type” of the second Storage Profile was “Boolean”.

BUGFIX (Changing of the “Time Domain” of a Storage Profile could modify other Settings)
In case the “Time Domain” of a Storage Profile was changed, other settings like the “Threshold Type” or the “Timer Interval Format” within the “Stop Trigger” table could be modified unintentionally.

BUGFIX (Wrong Detection of (not-existing) Stop Events)
In case of a stop event like “Value is 0”, the stop trigger could fire even in case the value was never 0 after the start event. This wrong behavior was caused by an internal status variable which was not reset at the moment of the start event.

BUGFIX (Possible Memory Leak within the simulated Devices)
The clean-up of send buffers for simulated devices could be missing in case of low-memory conditions.

2.6 X-Tools V 03.05 -> X-Tools V 04.00 IR1

The following changes have been introduced in ***X-Tools*** V 04.00 IR1:

FEATURE (Additional Analyzing Function GetStartTime())
The new Analyzing Function GetStartTime() can be used in order to determine the start time of an offline data.

FEATURE (Additional Analyzing Function GetStopTime())
The new Analyzing Function GetStopTime() can be used in order to determine the stop time of an offline data.

FEATURE (Additional Analyzing Function Sleep())
The new Analyzing Function Sleep() can be used in order to pause the processing of the parent Analyzing Script for the specified amount of time.

FEATURE (Additional Analyzing Function StartEx())
The new Analyzing Function StartEx() can be used in order to start an Analyzing Model with passing of parameters to it.

FEATURE (Additional Analyzing Function AddB2D())
The new Analyzing Function AddB2D() can be used in order to add the amplitudes of two 2-dimensional buffers.

FEATURE (Additional Analyzing Function Extrapolate())
The new Analyzing Function Extrapolate() can be used in order to extrapolate the trend from a given time series into the future.

FEATURE (Additional Analyzing Function GetStatus())
The new Analyzing Function GetStatus() can be used in order to determine the status (e.g. “data is valid”, “input not available” or “division by zero”, …) which belongs to each link like the value which is transported.

FEATURE (Additional Analyzing Function RemCnt())
The new Analyzing Function RemCnt() can be used in order to use a remanent counter within Analyzing Models and Analyzing Scripts. The value of this counter is read from and written to a .ini file which is put into the direc-toy of the parent Analyzing Model/Analyzing Script, therefore it also stays remembered between restarts of the Analyzing Model/Analyzing Script and of X-Tools itself.

FEATURE (Additional Output Mode “Single Value” for Output Analyzing Functions)
The additional output mode “Single Value” can be used in order to create offline data with exactly one probe (= timestamp + value). While the calculation is running, the one-and-only probe can be overwritten multiple times (e.g. in order to store the maximal value of a curve at the moment when this maximum has been reached for the first time).

FEATURE (Additional Output Mode “Advanced Append” for Output Analyzing Functions)
The additional output mode “Advanced Append” can be used in order to always append the current calculation results to the results from the last calculation and to limit the maximal size of the created output data at the same time. The maximal allowed size of the output data can be configured and the output Analyzing Functions automatically remove the oldest probes of the output data in order to grant the configured maximal size.

FEATURE (Connecting of “Unit” and “Description” within Analyzing Programs)
The “Unit” and “Description” input arguments of all output Analyzing Functions now can be connected via links. Thus, it becomes possible to connect the “Unit” and “Description” output arguments of input Analyzing Functions to the “Unit” and “Description” input arguments of output Analyzing Functions.

FEATURE (Parameters for Analyzing Models)
The **AME Standard T001** now allows to configure input arguments of Analyzing/User Functions as parameters of the parent Analyzing Model. Such an Analyzing Model with parameters can be started via the Analyzing Function StartEx() in order to pass the desired parameters to it.

FEATURE (Export to .csv with one Probe per File)
The **Advanced Export** dialogs of the **MDS Explorer** and of the **ODL Standard T001** now allow to configure the “File Creation Mode”. Via this setting the export can be configured to either create one file for all of the to-be-exported probes (pairs of timestamp + value) or to create multiple .csv files where each file contains only a sin-gle probe.

FEATURE (Configurable Priority of the X-Tools Server)
The priority of the process of the ***X-Tools Server*** now can be configured via the “Process Priority” setting from the global options.

FEATURE (Calculations within the MTC yn T001)
The toolbar of the **MTC yn T001** has received the additional button “Calculate”. Via the context menu of this

button automatic calculations can be configured so that the MTC yn T001 displays all of its contained spectrums with a unit of [m/s²] (acceleration), [mm/s] (velocity) or [mm] (displacement).

FEATURE (Improved zooming at auto-scaled Axes)
In case an axis is configured to automatic scaling, the automatic scaling is turned off automatically at the moment when the user zooms or shifts this axis manually.

FEATURE (Logarithmic scaling of Axes)
The axes of the following **Monitoring Charts** can be switched to “Logarithmic” now: **MTC yn T001** (x and y axis), **MTC ynm T001** (x, y and z axis), **MTC yt T001** (y axis) and **MTC yx T001** (x and y axis).

FEATURE (Support for smaller Heights of Monitoring Charts)
The minimal allowed height of **Monitoring Charts** has been reduced to 40 pixels of space which must remain available for the Curve Area.

FEATURE (Improved moving of Windows)
Whenever the size or position of a window shall be changed, the resulting size and position of the window is indicated during the drag operation. During the drag operation, a green frame shows positions which can be applied after the drop and a red rectangle shows positions which can not be applied.

FEATURE (Adding of a Standard Fast Analysis Location)
A location with several basic Fast Analysis Scripts is delivered together with ***X-Tools*** now. This location is added to the ***X-Tools Server*** automatically during its first initialization and whenever the file location file must be recreated.

BUGFIX (Possible Crash in case of exporting of Data with an Export Mode of “Interval Only”)
In case “Interval Only” was chosen as export mode within the **Advanced Export** dialog of the **ODL Standard T001** and the to-be-exported data was an extended data type (e.g. “1-dimensional buffer”, “spectrum”, …), a crash could occur.

BUGFIX (Improper Support for Precisions different to “Decimal64” by some extended Data Types)
The following Analyzing Functions did not process precisions different to “Decimal64” properly in all cases: InB1D(), OutB1D(), InB2D(), OutB2D(). As a result, the values which were processed by these Analyzing Functions could become corrupted.

BUGFIX (Possible Crash in case of Conversions to Integer Data Types)
In case implicit outputs from Analyzing Scripts were used in order to output data of type Integer, a crash could in cases where the input data had non-zero digits after the comma.

BUGFIX (Possible Hang of Monitoring Views)
A certain timing could lead to a deadlock (and, as a result, to a hang) of a Monitoring View during its attempt to resume.

BUGFIX (Possible temporary Freeze of the X-Tools Client)
The ***X-Tools Client*** could temporarily freeze (for seconds up to minutes) in case of systems with a lot of ongoing state changes of Configuration Files, e.g. from “started” to “stopped” or vice versa.

BUGFIX (Wrong handling of the Interpolation Mode “None” through the Analyzing Function InB2D())
In case the Analyzing Function InB2D() was called with an interpolation mode of “None”, it did not set the status of its Output0 properly. As a result, following Analyzing Functions could use wrong values for their calculations.

2.7 X-Tools V 04.00 IR1 -> X-Tools V 04.00 IR2

The following changes have been introduced in ***X-Tools*** V 04.00 IR2:

FEATURE ("Offline Data Viewer" Edition of X-Tools)
This new edition is provided in addition to the "Professional" edition of ***X-Tools*** from now on. It can be started in parallel to a "Professional" edition and allows to perform basic visualization and analysis tasks. This edition does not handle any kind of online data and can not connect to any kind of devices.

FEATURE (Support for Data of Type "String")
Data of type "String" now can be acquired from devices of type "ION SIMATIC S7 PN", "ION SIMATIC S7-300 T001", "ION SIMATIC S7-400 T001" and "ION SIMOTION T001". Data of type "String" also can be input and output by Analyzing Models and Analyzing Scripts from now on and it is possible to store/load/export such data. There is no separate **Monitoring Chart** for the visualization of this data type at the moment.

FEATURE (Additional Analyzing Function InputString())
The new Analyzing Function InStr() can be used in order to read data of type "string" from the system and to use it within Analyzing Models and Analyzing Scripts.

FEATURE (Additional Analyzing Function OutputString())
The new Analyzing Function OutStr() can be used in order to write data of type "string" to the system out of Analyzing Models and Analyzing Scripts.

FEATURE (Default Values of Analyzing/User Functions within the ASE Standard T001)
In case the <Alt> key is hold down while an Analyzing Function or User Function is inserted into the ASE Standard T001, the dropped Function is inserted together with its default values and additional comments about each of its input and output arguments.

FEATURE (Formula Editor within the MVE Standard T001)
The "Formula Editor" table within the MVE Standard T001 can be used in order to define and run simple calculations. The **MTS Explorer** displays the available libraries of Analyzing Functions and User Functions now in the same way like the **ANS Explorer** and allows to drag Functions directly into the "Formula Editor" table.

FEATURE (Additional Analyzing Function ShellExecute())
The new Analyzing Function ShllExe() can be used in order to call a Windows (shell) command.

FEATURE (Additional Analyzing Function WaitForFileSplitting())
The new Analyzing Function WaitForFS() can be used in order to wait until the specified Storage Profile has completed another file splitting. Afterwards, further processing like loading of the latest offline data files can be performed.

FEATURE (Additional Analyzing Function ExportData())
The new Analyzing Function ExprtData() can be used in order to export an offline data from the **MDS Explorer** to a .csv file.

FEATURE (Additional Analyzing Function InputConstant())
The new Analyzing Function InConst() can be used in order to pass constant values to Analyzing Models. The output of this Analyzing Function can be linked also to input arguments of type "parameter" (like the number of points of the Analyzing Function Buffer()), which is not possible with the output of other Analyzing Functions.

FEATURE (Additional Monitoring Chart MTC ynt T001)
The new Monitoring Chart can be used in order to visualize 1-dimensional buffers (e.g. a spectrum) over the time in a 3-dimensional space. The Monitoring Chart also can be switched to a view from the top (spectrogram) or from the front.

FEATURE (More advanced automatic Updating of the Time Interval of a MTC yt T001)
The value of "Rescale t-Axis after Open" and of "Rescale t-Axis after Action" can be configured to "No", "Fit to Time Interval", "Update Start Time" and to "Update Stop Time" now.

FEATURE (More advanced automatic Updating of the Time Interval of a MTC yx T001)
The value of "Update Display Time after Open" and of "Update Display Time after Action" can be configured to "No", "Fit to Time Interval", "Update Start Time" and to "Update Stop Time" now.

FEATURE (More advanced automatic Updating of the Time Interval of a MTC yn T001, MTC ynm T001, MTC Orbit T001 or MTC Vector2D T001)
The value of "Update Display Time after Open" and of "Update Display Time after Action" can be configured to "No", "Show Start Time" and to "Show Stop Time" now.

FEATURE (Formula Editor within the MVE Standard T001)
The “Formula Editor” table of the **MVE Standard T001** allows to run simple calculations directly within the Monitoring System.

FEATURE (#include Statements for Analyzing Scripts)
Analyzing Scripts can #include other Analyzing Scripts from now on in order to access the variable, constant and function definitions from the included Analyzing Scripts.

FEATURE (Find and Replace within the ASE Standard T001)
The **ASE Standard T001** provides a **Find and Replace** dialog now which can be used in order to search texts within the Analyzing Script and/or to replace a given text through some other text.

FEATURE (Exporting of additional Information to .csv Files)
In addition to the already exported information, also the precision of the exported offline data is added to the header of each .csv file now. In case of extended data types (like spectrum, 1-dimensional buffer, …), also the type and the format of the extended data type are exported.

FEATURE (Group Boxes within the AME Standard T001 and UFE Standard T001)
The **AME Standard T001** and **UFE Standard T001** now allow to add additional organization to Analyzing Models and User Functions. So-called “group boxes” can be put around the present Functions in order to highlight groups of functionality and to add additional, descriptive comments.

FEATURE (Undo and Redo within the AME Standard T001, UFE Standard T001 and ASE Standard T001)
The **AME Standard T001**, **UFE Standard T001** and ASE Standard T001 now provide undo and redo operations in order to undo/redo the last inputs within their Analyzing Model/User Function/Analyzing Script.

FEATURE (Additional Parameters for Analyzing Models)
Analyzing Models can be configured to take additional parameters when they are called via StartEx(). The additionally possible parameters include the data name prefixes, the cycle time and the offline time configuration.

CHANGE (Removing of the internal Timeout from the Analyzing Function LoadData())
Before this change, LoadData() returned at latest after 200 seconds, even in case the to-be-loaded data was not entirely loaded yet. Now, LoadData() returns only in case a) all of the to-be-loaded data has been loaded or b) the parent Analyzing Program is stopped.

CHANGE (Change of the Status Values which can be reported by the Analyzing Function GetStatus())
The integer values which represent a value status have been changed so that they match the values from the user manual now.

CHANGE (No automatic abort of the Download of the Address Book from an ION SIMATIC TDC T001)
In case one branch of the address book can not be downloaded, an according log entry is created and the **DPE ION SIMATIC TDC T001** continues to attempt to download the next (and all following) branches. Before this modification, the download was aborted automatically after the first error has been detected.

CHANGE (Improved Selections within the AME Standard T001 and UFE Standard T001)
In case the context menu is called above a not-selected item within the **AME Standard T001** or **UFE Standard T001**, the current selection is removed and the item from which the context menu has been called becomes selected.

CHANGE (Increased maximal Size of Analyzing Scripts)
The maximal size of each Analyzing Script has been increased to 1 MByte (= 1048576 characters).

CHANGE (Removing of the Time Format “YYYY-MM” from Time Axes)
The time format “YYYY-MM” is not used by time axes any more because the distance between months is not equidistant. Instead, the time format “YYYY-MM-DD” is used in case there is enough space available and the time format “YYYY” is used when there is not enough space available.

CHANGE (New Name for executable (.exe) Files)
The .exe files of ***X-Tools*** have been changed in order to receive different names for each edition. For example, the executable files of the “Professional” edition now have the names “X-Tools Client Pro.exe”, “X-Tools Server Pro.exe”, “X-Tools Service Pro.exe” and “X-Tools Tray Pro.exe”.

BUGFIX (Incorrect Operation in Combination with the third-party “Project Viewer” Tool)
In case the XSI.dll was used by the third-party “Project Viewer” tool, the data streaming could not be started in some cases. In other cases, also a crash of the ***X-Tools Server*** was possible.

BUGFIX (Possible Crash of the X-Tools Server)
A certain timing could lead to a race condition during the preparation of an automatic report. As a result, the ***X-Tools Server*** could attempt to access already freed memory and it could crash afterwards.

BUGFIX (Possible Crash of the X-Tools Client)
In case the mouse wheel was used within the AME Standard T001 or UFE Standard T001 at a moment where this editor did not show the vertical scroll bar, the ***X-Tools Client*** could crash.

BUGFIX (OPC UA is not available)
The OPC UA functionality could not be used because the OPC UA DLLs could not be loaded properly.

BUGFIX (Possible Crash of the X-Tools Server)
A certain timing between the creation of data for an automatic report and the preparation of the automatic report could be affected by a race condition. As a result, the ***X-Tools Server*** could attempt to access already freed memory and it could crash afterwards.

BUGFIX (Wrong suspend of an Analyzing Model to which a String is passed)
In case a string was passed to an Analyzing Model via the Analyzing Function StartEx() and in case this string contained a character which is not allowed within a data name, the Analyzing Model suspended. The according log entry that pointed that the passed parameter had an invalid format.

BUGFIX (Possibly corrupted Data in case an older Time Interval is appended to a newer Time Interval)
The internal state of an offline data could become corrupted in case older parts were appended to already present newer parts. As a result, some parts of the data may have been not displayed any more by the Monitoring System.

BUGFIX (Offline Data with future Timestamps can not be stored/exported via the MDS Explorer)
In case offline data with future timestamps should be stored or exported via the **MDS Explorer**, the storing/exporting did not complete before the system time has reached the timestamp of the offline data which was farthest in future.

BUGFIX (Possible Corruption of old User Functions)
User Functions which were created by V 03.03 could become corrupted when they were opened with newer versions in case their internal return value state was inconsistent already.

BUGFIX (Improper Handling of the Update Interval through the Analyzing Function H2D())
In case the configured update interval of H2D() (e.g. 100 ms) was an integer multiple of the current cycle time (e.g. 10 ms), H2D() has output one new value each “update interval + cycle time” interval (in this example, it has output one new histogram each 110 ms instead of each 100 ms).

BUGFIX (Missing “Provided Parameters” Table within Reports out of the AME Standard T001)
In case a report was created out of an **AME Standard T001**, the report did not contain any information about the “Provided Parameter” table and its contents.

BUGFIX (Possible Crash within the AME Standard T001 because of outdated Selections)
In case the context menu was called within the AME Standard T001, the previous selection of Functions and/or input/output arguments was not updated properly and the access to a wrong index could cause a crash.

BUGFIX (Possible Crash because of a too early Access to Data)
A certain timing could lead to a situation where the Monitoring System tried to access a data which was not available yet and the ***X-Tools Server*** could crash.

BUGFIX (Possible Crash because of improper Access to Data)
The synchronization of the access to the reference counters of data was not strong enough and could lead to situations where a data was freed by ***X-Tools*** although it was still in use. As a result, log entries like “The handle to signal xyz was closed too many times.” and also crashes of the ***X-Tools Server*** could appear.

BUGFIX (Possible Crash because of improper Access to Data within the Monitoring System)
A certain timing could clear the copies of data within the Monitoring Engine while they were accessed by other threads and as a result the ***X-Tools Server*** could crash.

BUGFIX (Possible appearing of unwanted Values in Action based Operating Modes)
The action based operating modes of Analyzing Models and Analyzing Scripts have considered not only the present data values but also the stored event information (like “source present start/stop”, “data available start/stop”, …). In some cases, additional values were added at the moments of an event. The rules for the generating of events have been changed so that the relevant events (like “source present start” or “data available start”) do not appear earlier than the first probe any more.

BUGFIX (Possible Crash because of a too early Return of LoadData())
A certain timing could cause the Analyzing Function LoadData() to detect a finished loading although the actual loading was still in progress. As a result, LoadData() could return and the following access to the not-finished data could lead to a crash of the ***X-Tools Server***.

BUGFIX (Timeout during the reading of an Address Book from an ION SIMATIC TDC T001)
In case a packet with address book information from the ION SIMATIC TDC T001 to the ***X-Tools Server*** contained exactly 1464 bytes of data, a timeout could be detected by ***X-Tools*** because of a wrong internal check.

BUGFIX (Possible Crash because of improper Access to Data within the Storage System)
A certain timing could cause a crash of the ***X-Tools Server*** at a moment when a Storage Profile with a manual start/stop trigger performed checks about a theoretic data start/stop trigger. These checks have been removed.

BUGFIX (Possible Crash of the X-Tools Client after the shut down of the X-Tools Server)
In case a context menu for the ***X-Tools Server*** was called before the shut down of the ***X-Tools Server*** within any explorer tree of the ***X-Tools Client*** and a context menu item was chosen after the shut down, a crash of the ***X-Tools Client*** could occur.

BUGFIX (Wrong Information about Analyzing Functions with configurable Arguments)
The **Analyzing Function Properties** dialog could display wrong information about Analyzing Functions which provide a configurable number of (input or output) arguments in case some of the arguments of the Analyzing Function were used as parameter of the Analyzing Model.

BUGFIX (No Access to Fast Analysis Scripts for Users different to "Administrator")
In case the ***X-Tools Client*** was connected to the ***X-Tools Server*** with a user different to "Administrator", it was not possible to run any Fast Analysis Script via the MDX.

BUGFIX (Wrong Path Information for Analyzing Models and Analyzing Scripts)
The internal mechanism which can be used by Analyzing Functions in order to determine the path of their parent Analyzing Model/Analyzing Script contained an error so that the path contained the "Analyzing Models" directory even in case this information was requested by an Analyzing Script. Analyzing Functions like RemCnt() and ShowPath() were effected by this error.

BUGFIX (Possibly wrong decoding within the Analyzing Function OutputTCP())
This Analyzing Function could handle the passed 1-dimensional buffer in a wrong way. As a result, it could transmit wrong values via the TCP connection and the receiver could see only 0 values.

BUGFIX (Missing Visualization after a reconnect of the X-Tools Server)
In case the connection to an ***X-Tools Server*** got broken and re-established while a Monitoring View was visualizing data from this ***X-Tools Server***, the Monitoring View did not restore its status properly after the reconnect. As a result, the values of the contained data were not displayed any more.

BUGFIX (Possibly wrong Order within the "User Function Overview" Dialog)
There was a possibility to end up with a User Function where the order of input and output arguments within the **User Function Overview** dialog was different to the order from the "Provided Input Arguments" and "Provided Output Arguments" tables of the **UFE Standard T001**.

BUGFIX (Possibly lost Changes within the UFE Standard T001)
In case an existing User Function was opened within the UFE and the contents of the "Provided Input Arguments" and/or "Provided Output Arguments" tables were changes afterwards, these changes could be lost after a following "Move up" or "Move down" operation.

BUGFIX (Improper Import of Boolean Values)
The values of .csv files which contain Boolean values could be imported improperly. Within ***X-Tools***, the imported data values could have values different to 0 and 1.

BUGFIX (Storages Profiles may not store any Data in case a Space Character is part of the Path)
In case a space character was present at the end of some file/directory name, the Storage Profile did not store anything because the internal mechanism for the file/directory creation failed. There was no indication about this error and from the status of the Storage Profile it looked as if it was running properly.

BUGFIX (Possible Corruption of a User Function)
In case a function was deleted within the **UFE Standard T001**, the edited User Function became invalid in case the deleted function provided the current return value of the User Function and additional output arguments.

BUGFIX (Wrong Export of 2-dimensional Vector Data with a Precision of Decimal32)
The exported values of a 2-dimensional vector data were wrong in case the precision of the data was Decimal32.

BUGFIX (Possibly missing Data Values within Monitoring Charts)
In case the currently visualized data disappears (e.g. because the source ***X-Tools Server*** disconnects) and reappears afterwards, it could be that no more values of the data were displayed by the Monitoring Chart.

2.8 X-Tools V 04.00 IR2 -> X-Tools V 04.00

The following changes have been introduced in ***X-Tools*** V 04.00:

FEATURE (x64 Variants for x64 Operating Systems)
All editions of ***X-Tools*** are available as x32 (32 Bit) and x64 (64 Bit) variants from now on. The x64 variants can run on 64 bit operating systems as 64 bit processes, which allows them to use much bigger amounts of memory.

FEATURE (Support of SIPLUS CMS4000 IFN ANALOGINPUT-DISTANCE)
Support for the new hardware interface node IFN ANALOGINPUT-DISTANCE.

FEATURE (Support for scalar Data)
In addition to online and offline data, also scalar data are supported by ***X-Tools***. Scalar data are single values without time information and can be used in order to store key values or as parameters for analysis tasks.

FEATURE (MTC Mimic Board T001)
The new **MTC Mimic Board T001** can be used in order to show the values of data as text, in order to show the status of data via signal lights and in order to show a graphical view of the process together with its relevant key values.

FEATURE (Additional Analyzing Function GetNumberOfPoints())
The new Analyzing Function GetNoP() can be used in order to determine the number of points of an offline data.

FEATURE (Additional Analyzing Function ConvertToVDMA())
The new Analyzing Function ConvToVDMA() can be used in order to convert the current value of any Integer or decimal data into the according VDMA-code for “OK”, “warning”, “critical” and “defect”.

FEATURE (Additional Analyzing Function IsPrcsBsy())
The new Analyzing Function IsPrcsBsy() can be used in order to check whether the specified process reacts to Window messages (= whether it is busy or not).

FEATURE (Additional Analyzing Function IsPrcsPrsnt())
The new Analyzing Function IsPrcsPrsnt() can be used in order to check whether the specified process is present currently.

FEATURE (Additional Analyzing Function MonPC())
The new Analyzing Function MonPC() can be used in order to monitor any of the performance counters which are maintained by Windows.

FEATURE (Additional Analyzing Function MonPM())
The new Analyzing Function MonPM() can be used in order to monitor the memory usage of the specified process.

FEATURE (Additional Analyzing Function MonPT())
The new Analyzing Function MonPT() can be used in order to monitor the CPU usage of the specified process.

FEATURE (Additional Analyzing Function MonFrBlck())
The new Analyzing Function MonFrBlck() can be used in order to monitor the maximal free memory block of the specified process.

FEATURE (Additional Analyzing Function MonSM())
The new Analyzing Function MonSM() can be used in order to monitor the memory usage through the whole system (= all running processes).

FEATURE (Additional Analyzing Function MonST())
The new Analyzing Function MonST() can be used in order to monitor the CPU usage through the whole system (= all running processes).

FEATURE (Additional Analyzing Function NTPOffset())
The new Analyzing Function NTPOffset() can be used in order to monitor the time difference between the current system time and the specified time server.

FEATURE (Additional Analyzing Function SetStts())
The new Analyzing Function SetStts() can be used in order to set the status of a variable to a defined value.

FEATURE (Additional Analyzing Function GetNoV())
The new Analyzing Function GetNoV() can be used in order to determine the number of values of an offline data.

FEATURE (Improved handling of a variable Number of Arguments through Analyzing Scripts)
In case an Analyzing Function which provides a variable number of arguments is used within an Analyzing Script and the call of the Analyzing Function does not contain the ; separator in order to mark the last of the configurable arguments, an according warning is added to the system log.

FEATURE (Reading of Strings from OPC UA Servers)
Also data of type “string” can be read from OPC UA servers from now on.

FEATURE (Providing of Strings to OPC UA Clients)
Also data of type “string” can be provided to OPC UA clients from now on.

FEATURE (Adding of the “Default Output Data Precision” to Analyzing Models and Analyzing Scripts)
The new option “Default Output Data Precision” has been added to the “Analyzing Model Parameters” and “Analyzing Script Parameters” table of the **AME Standard T001** and **ASE Standard T001**. It can be used in order to configure the precision of all output Analyzing Functions whose “Precision” input argument is set to “Default”.

FEATURE (Smart decimal Places)
The new global option “Smart decimal Places” can be configured for the ***X-Tools Client***. When it is turned on, the system automatically extends the number of displayed decimal places so that the first non-zero digit after the comma becomes visible.

FEATURE (New Time Interval Format “None (use shortest Time Interval)”)
The new time interval format from the “Offline Time Configuration” table of Analyzing Models and Analyzing Scripts can be used in order to automatically determine and use the time interval of the input data.

FEATURE (Support for Data of Type “String” for the ION SIMATIC TDC T001)
Data of type “String” now can be acquired from devices of type “ION SIMATIC TDC T001”.

FEATURE (New Command Line Argument “/printMVF”)
The “/printMVF” command line argument can be used in order to print a Monitoring View.

FEATURE (Passing of Command Line Arguments via a Web Browser)
The ***X-Tools Client*** registers for the URI scheme “xtools:”. As a result, the command line arguments of the ***X-Tools Client*** also can be called via links out of web browsers.

FEATURE (Additional Log Entries about erroneous third-Party Analyzing Functions)
In case an error is detected within the interface of a third-party Analyzing Function, an according log entry is created.

FEATURE (New Setup)
All variants of ***X-Tools*** are delivered with a new setup.

FEATURE (Advanced Cursors and Frequency Markers within automatic Reports)
In case the advanced cursors and/or the frequency markers of a **MTC yn T001** are turned on at the moment when the Monitoring View is saved, they are added also to the image of each automatic report which is created through the Monitoring View afterwards.

FEATURE (Improved Labels for Advanced Cursors and Frequency Markers within the MTC yn T001)
Via the context menu of each advanced cursor/frequency marker within the **MTC yn T001** it is possible now to choose whether the label and/or the value shall be displayed at the bottom and/or at the top of the vertical line.

FEATURE (Each Subharmonic and Harmonic can be moved)
The **MTC yn T001** allows to move each of the displayed subharmonics and harmonics.

FEATURE (Improved loading of Offline Data)
In case the loading of offline data runs into an error (e.g. there is a mismatch between the already loaded offline data and the content of a to-be-loaded offline data file, …), the already loaded part of the offline data is added to the **MDS Explorer**.

FEATURE (Improved System Information)
The log entries about the current system information of ***X-Tools Client*** and ***X-Tools Server*** have been improved so that they now report also the computer name, the maximal commit charge, the currently used code page and the proper processor architecture.

FEATURE (Global searching of References)
The **Find References** dialog can be used in order to find the specified data name within any of the currently present Configuration Files.

CHANGE (New default Output Data Precision of Analyzing Models and Analyzing Scripts)
The default precision of the output Analyzing Functions of new Analyzing Models and Analyzing Scripts has been changed from “Decimal64” to “Decimal32”.

CHANGE (Improved handling of not-supported Data Types through the SPE Binary T001)
In case a data of not-supported type (e.g. a Spectrum) is dropped onto a Storage ID, Start Trigger Data Name or Stop Trigger Data Name cell, an according message box is displayed which points out that the type of this data is not supported at this place.

CHANGE (Improved handling of not-supported Storage Modes through the SPM Binary T001)
In case a not-supported storage mode is specified for some data (e.g. “Changes only” for a Spectrum), the **SPM Binary T001** outputs an according warning to the system log after the Storage Profile has been started.

CHANGE (Correcting of the Order of Input and Output Arguments of User Functions)
In case a User Function was called by an Analyzing Script, it expected its input and output arguments in the order in which these arguments were added to the **UFE Standard T001**. Instead, the new expected order is identical to the order of input and output arguments as it is defined within the **UFE Standard T001**, identical to as it can be seen within the **User Function Overview** dialog and identical to as it is used when <Alt> is pressed during the Drag&Drop of the User Function into the **ASE Standard T001** or into the “Formula Editor” table of the **MVE Standard T001**.

CHANGE (Version Checks for X-Tools Server, X-Tools Service and X-Tools Tray)
All binaries of ***X-Tools*** now ensure that they communicate only with another binary of ***X-Tools*** in case the major and minor version of both binaries are identical.

CHANGE (Changed default Color within MTCs)
The default color for “Text of selected Items (Inactive)” within the **Chart Styles** dialog of each Monitoring Chart has been changed to white (RGB = 255, 255, 255).

CHANGE (“Number of Harmonics” within the “Configure Frequency Markers” Dialog)
Until now, a value of “0” was used by the **MTC yn T001** as “Number of Harmonics” in case only the frequency marker should be displayed (without any harmonics). From now on, a value of “1” is used instead – as a result, a value of “2” displays the frequency marker plus 1 harmonic. The internal representation is not changed, thus Monitoring Views from previous versions still show exactly the same number of harmonics within the **MTC yn T001**.

CHANGE (Naming of X-Tools)
X-Tools has been renamed from “SIPLUS CMS X-Tools” to “CMS X-Tools”.

CHANGE (Moving of the OutReady Output Argument of MonAlrmSpm())
The “OutReady” output argument of the Analyzing Function MonAlrmSpm() has been moved to the end of the output arguments of this Analyzing Function. Analyzing Models can be updated automatically after this change, Analyzing Scrips which contain MonAlrmSpm() must be updated manually.

CHANGE (Update of the “Standard Fast Analysis” Location)
A few Analyzing Scripts of the “Standard Fast Analysis” location have been updated. In addition, several new Analyzing Scripts have been added to this location.

BUGFIX (Improved Scroll Bars within the ODL Standard T001)
Within the **ODL Standard T001**, the “Offline Data Files” tree could become much bigger than the actual height of the **ODL Standard T001** itself. As a result, two vertical scroll bars were displayed and scrolling from the top of the tree to its bottom always required to use both scroll bars.

BUGFIX (Wrong handling of not-supported Trigger Data Types)
In case a data of not-supported type (e.g. a Spectrum) was used as data for the start or stop trigger of a Storage Profile, huge amounts of log entries were created and the Storage Profile did not suspend properly.

BUGFIX (“Cancel Loading” may not work within the DPE ION SIMATIC TDC T001)
The “Cancel Loading” button of the **DPE ION SIMATIC TDC T001** did not cancel the loading of the address book.

BUGFIX (“Append” and “Advanced Append” do not work with overlapping Stop and Start Times)
In case the output modes “Append” or “Advanced Append” were used by an output Analyzing Function, the parent Analyzing Model/Analyzing Script suspended in case the stop time of the already present offline data was identical to the start time of the to-be-appended offline data.

BUGFIX (Possible Crash during the Initialization of the OPC UA Interface)
The ***X-Tools Server*** could end up with a crash in case the initialization of the OPC UA interface returned an error.

BUGFIX (Possibly lost Synchronization between Time Axis of one Group)
Dropping of another offline data into a Monitoring View which contained offline data already could end up with two t-axes which were within the same group (e.g. “G1”) but which displayed different time intervals.

BUGFIX (Possible Crash after pressing of “Clear Log” within the System Log Viewer)
Clearing of the currently displayed log entries via the “Clear Log” button of the **System Log Viewer** could cause a crash of the ***X-Tools Client***.

BUGFIX (The OPC UA Client could not receive any Data from OPC UA Servers)
A wrong timeout setting has keep the OPC UA client of ***X-Tools*** from connecting properly to OPC UA servers. As a result, the OPC UA client could not read the available online data from OPC UA servers.

BUGFIX (Global Option Files from Versions before V 04.00 IR2 could not be opened)
In case the Global Options File from a version of ***X-Tools*** before V 04.00 IR2 was opened, its contained global options were not available.

BUGFIX (Possible Crash within the Storage System)
The ***X-Tools Server*** could end up with a crash

BUGFIX (Possible Memory Leak within Storage Profiles)
In case a Storage Profile was configured to a start trigger like “Value > Threshold” and the pre trigger time was rather long, it could happen that the Storage Profile was unable to store any values to disk. In this situation, the Storage Profile also could start to consume more and more memory.

BUGFIX (Possible Memory Fragmentation through output Analyzing Functions)
Output Analyzing Function which have output offline data could cause significant fragmentation of the address space of the ***X-Tools Server*** because at the start of the Analyzing Model/Analyzing Script they typically have allocated more memory than there was needed for their calculation result.

BUGFIX (Scroll Bars within a MVE Standard T001 may not work properly)
In case the Monitoring Charts within a **MVE Standard T001** were scrolled to the left/right/top/bottom, some axis labels were not moved together with their Monitoring Chart and controls like the sliders were not operable any more.

BUGFIX (Possible Crash in case of automatic Reports with the MTC ynm T001)
In case the MTC ynm T001 was used within a Monitoring View and this Monitoring View had to create an automatic report, the ***X-Tools Server*** could crash.

BUGFIX (Possible Hang of the X-Tools Server)
A certain timing could lead to a hang of the ***X-Tools Server*** while it tried to terminate itself.

BUGFIX (Possibly wrong Unit at the x-Axis of a MTC yn T001)
In case the **MTC yn T001** displayed a spectrum and the values at the x-axis were in [MHz], the axis unit was displayed as [kHz].

BUGFIX (Visualization Artifacts in case of a hidden Title Bar of a Monitoring Chart)
In case the title bar of a Monitoring Chart was hidden, the buttons of the title bar still could be displayed behind the slider.

BUGFIX (Possible Crash after opening of a Monitoring View which contains empty Monitoring Charts)
In case a Monitoring View was opened which contained an empty MTC Orbit T001, MTC Vector2D T001, MTC ynm T001 or MTC ynt T001, the ***X-Tools Client*** could crash.

BUGFIX (Wrong Names of Data Types)
The **Analyzing Function Overview**, **User Function Overview**, **Analyzing Function Properties** and **User Function Properties** dialogs have shown wrong names for inputs/outputs of type “Orbit” or “2-dimensional Vector”.

BUGFIX (Wrong storing of the State of Items within the MDS Explorer)
The full path to each expanded/collapsed item inside the **MDS Explorer** was stored together with the item count of each branch. As the item count is changing whenever items are added or removed, a lot of redundant information could be stored within the “Global Settings.gsf.xtc” file. This amount of redundant information could cause very big files, a very high memory usage through the ***X-Tools Client***, a not-responsive ***X-Tools Client*** and wrong remembering of the state of tree items.

BUGFIX (Broken Communication to OPC UA Servers)
In case the ***X-Tools Server*** was configured as OPC UA client, it was unable to read the address space from any OPC UA server.

BUGFIX (Possible Crash because of a corrupted Monitoring View)
A corrupted Monitoring View could cause a crash of the ***X-Tools Server*** and/or of the ***X-Tools Client***.

BUGFIX (Wrong Log Entry about a changed String Size through OutStr())
The Analyzing Function OutStr() could output a log entry about a changed string size also in situations where the string size did not change.

BUGFIX (Failed automatic Update of an Analyzing Model)
Analyzing Models which contained InConst() could fail to be updated automatically.

BUGFIX (Starting of a Formula via the Formula Editor may not work)
In case the ***X-Tools Client*** was connected to more than one ***X-Tools Server***, starting of a formula via the "Formula Editor" table of a **MVE Standard T001** did not work properly: The status within the "Formula Editor" table was not updated and the output data could not be removed from the system any more.

BUGFIX (Possible Corruption of a User Function)
Removing of an Analyzing Function which provided input and/or output arguments of the User Function could corrupt the User Function.

BUGFIX (Removing of "Manual scale Renderer" from the MTC Vector2D T001)
The context menu item "Manual scale Renderer" has been removed from the **MTC Vector2D T001** because the configuration of the renderer is not supported by this Monitoring Chart.

BUGFIX (Exit() did not allow to exit during the first Cycle)
In case Exit() tried to exit during the first cycle of an Analyzing Model/Analyzing Script, it output a wrong log entry and suspended the parent Analyzing Model/Analyzing Script afterwards.

BUGFIX (Possibly missing Line within the MTC yt T001)
In case the t-axis of the **MTC yt T001** had to show a very long time interval (tens of years), the line of the visualization could start in the middle of the Monitoring Chart (instead of at the left of the Monitoring Chart).

BUGFIX (Possible Crash in case OutSclrStr() had to output an empty String)
In case an empty string was passed to the Analyzing Function OutSclrStr(), it could cause a crash.

BUGFIX (Wrong handling of negative Timestamps through H2D())
The Analyzing Function H2D() has set its OutReady output argument to "true" whenever the current calculation time was negative.

BUGFIX (Wrong handling of the minimal Interval through logarithmic Axes)
In case the mouse lasso was used in order to zoom into a logarithmic axis to an interval which is below the minimal allowed interval, the status of the axes after the zooming operation could become undefined.

BUGFIX (Possible Crash of the X-Tools Client during the automatic restoring of Monitoring Views)
In case "Restore the Monitoring Views from the last Session" was configured to "Restore the Monitoring Views from the last Session during the Startup of the X-Tools Client" and a Monitoring View was open during the termination of the ***X-Tools Client***, the following startup of the ***X-Tools Client*** could end up with a crash.

BUGFIX (Crash of the X-Tools Client instead of the Conversion of a MTC yt T001 to MTC yx T001)
The ***X-Tools Client*** crashed in case the data from the legend of a MTC yt T001 was dragged and dropped onto the t-axes.

BUGFIX (Wrong updating of the Values of Input Arguments within AME and UFE)
In case the value of an input argument was changed within the **AME Standard T001** or **UFE Standard T001** and <Enter> was not pressed in order to end the editing, the entered value was assigned to the next clicked input argument instead of assigning it to the edited input argument.

BUGFIX (Possibly wrong Log Entries from MonAlrmSpm())
In case the specified alarm bands pointed to frequencies outside of the frequency range of the to-be-monitored spectrum, wrong log entries about the violation of amplitudes outside the frequency range of the to-be-monitored spectrum could be created.

BUGFIX (Wrong Log Entry about a wrong minimum or maximum Time Value)
In case a wrong minimum or maximum time value was passed to an Analyzing Model, the created log entry did not point out this error. Instead, another, derived error was output to the system log.

BUGFIX (Passing of the Time Interval to an Analyzing Model)
It was not possible to pass a time interval value with a format different to [s] to an Analyzing Model because the Analyzing Model always has interpreted the passed time interval value in seconds.

BUGFIX (Passing of "None (use Start Time of the Analyzing Model)" to an Analyzing Model)
It was not possible to pass a minimum time format of "None (use Start Time of the Analyzing Model)" to an Analyzing Model.

BUGFIX (Wrong remembering of expanded and collapsed Branches within the MDX Explorer)
The **MDS Explorer** did not remember the expand/collapse state of its contained items properly. As a result, most data was displayed collapsed when it was re-added to the **MDS Explorer** and the "Global Settings.gsf.xtc" file could become very huge.

BUGFIX (Possible Hang of the X-Tools Client after searching within the MDS Explorer)
In case a search was performed via the **MDS Explorer** when it contained hundreds or thousands of data, the **MDS Explorer** could start to scroll for a long time first and the ***X-Tools Client*** could end up with a hang afterwards.

BUGFIX (Visualization Artifacts within the MTC ynt T001)
Some combinations of y-axis and t-axis scaling could create visualization artifacts in form of filled rectangles which have pointed to the center of the bottom of the cuboid.

BUGFIX (Wrong handling of Record Modes through the Analyzing Function OutStr())
The output string contained random characters in case the chosen record mode was “Changes only” or “Changes and Interval”.

BUGFIX (Possible Crash during the simultaneous Start of multiple Monitoring Views)
In case multiple Monitoring Views were started via a start of their parent directory, the ***X-Tools Server*** could end up in a crash.

BUGFIX (Wrong Output of the Analyzing Function OutStr() in combination with Record Modes)
In case the record modes “Interval Only” or “Changes and Interval” were used in combination with the Analyzing Function OutStr(), the output string values were wrong.

BUGFIX (Possible Hang of Storage Profiles after a Change of the System Time)
A change of the system time could cause a hang of Storage Profiles. In this situation, the Storage Profile remained in status “stopping” forever.

BUGFIX (Monitoring Charts do not remember the Chart Background which was set as Standard)
Even after the “Set as Standard” button within the **Chart Styles** dialog of a Monitoring Chart had been pressed, the currently configured chart background was not applied to the new Monitoring Charts of the same type which were created afterwards.

BUGFIX (Wrong Indication of connected Links within the “Analyzing Function Properties” Dialogs)
In case of Analyzing Functions with a variable number of input arguments, the **Analyzing Function Properties** dialogs of the **AME Standard T001** and **UFE Standard T001** could display the “Link connected” information for wrong input arguments.

BUGFIX (Possible Communication Errors with ION SIMATIC TDC T001 Devices)
The communication between the ***X-Tools Server*** and ION SIMATIC TDC T001 devices could run into an error and could cause connection breaks in case of certain packet lengths.

2.9 X-Tools V 04.00 -> X-Tools V 04.01

The following changes have been introduced in ***X-Tools*** V 04.01:

Feature (Additional Analyzing Function ReadStringFromFile())
The new Analyzing Function ReadStringFromFile() can be used in order to read a string from a .ini file.

Feature (Additional Analyzing Function ReadValueFromFile())
The new Analyzing Function ReadValueFromFile() can be used in order to read a value (Boolean, Integer or Decimal) from a .ini file.

Feature (Additional Analyzing Function WriteStringToFile())
The new Analyzing Function WriteStringTofile() can be used in order to write a string to a .ini file.

Feature (Additional Analyzing Function WriteValueToFile())
The new Analyzing Function WriteValueToFile() can be used in order to write a value (Boolean, Integer or Decimal) to a .ini file.

CHANGE (Adding of ALM-based License Management)
The “Pro” Edition of ***X-Tools*** now is protected by the ALM (Automation License Manager) which allows to enable different functionalities depending to the available licenses.

2.10 X-Tools V 04.01 -> X-Tools V 04.02 IR1

The following changes have been introduced in ***X-Tools*** V 04.02 IR1:

FEATURE (Support for direct Communication with CMS2000 Devices)
X-Tools is able to communicate directly with CMS2000 devices and to receive their current measurement data as standard online data like it is known from all other supported devices.

FEATURE (Increased maximal Number of Points)
In addition to the so-far maximum of 65536 values, also input buffers with 131072 and 262144 values are supported by the Analyzing Function FFT() from now on.

FEATURE (Optional saving of new Monitoring Views)
The new global option “Prompt to save new Monitoring Views” allows to choose whether the ***X-Tools Client*** shall pop up with an according message when a new, unsaved Monitoring View is going to be closed.

FEATURE (Toolbar Button “Print Screenshot” for Monitoring Charts)
The additional toolbar button “Print Screenshot” has been added to all Monitoring Charts.

FEATURE (Variable Size of Toolbar Buttons)
The new global option “Size of Toolbar Buttons” allows to choose whether the toolbar buttons (e.g. within Monitoring Charts) shall be displayed with normal (100 %) or double (200 %) size.

FEATURE (Showing and hiding of Toolbar Buttons)
The new context menu item “Hide this Button” can be used in order to hide any of the toolbar buttons of a Monitoring Chart. In addition, also the **Chart Options** dialog allows to show and hide single toolbar buttons now.

FEATURE (Indication of a missing License)
In case the ***X-Tools Server*** is started and it can not find a proper license, the icons of the ***X-Tools Server*** within the ***X-Tools Tray*** and within the Explorer trees of the ***X-Tools Client*** display a warning.

FEATURE (Optional Output of Log Entries to a .csv File)
For support purposes it is possible to turn on a parallel output of all log entries into a .csv file. The contents of this .csv file can be sorted and filtered by third-party applications like Microsoft Excel.

FEATURE (Configurable Size of Monitoring Charts within the MVE Standard T001)
The new options “Define available Width manually” and “Define available Height manually” within the “Monitoring View Parameters” table of the **MVE Standard T001** can be used in order to choose the exact width and height that is used by the **MVE Standard T001** in order to display the present Monitoring Charts.

FEATURE (Configurable Path and File Name for Monitoring View Reports)
The path and the file name of the report files which are created by Monitoring Views can be configured now via the new “Storage Path” and “Storage File Name” parameters of the “Monitoring View Parameters” table within the **MVE Standard T001**.

FEATURE (Improved Support for Time Zones within Analyzing Models and Analyzing Scripts)
The new option “Output Time Base” within the **AME Standard T001** and **ASE Standard T001** can be used in order to configure the time base (= time zone) of the offline data which is created by the currently configured Analyzing Model/Analyzing Script.

FEATURE (Improved Support for Time Zones within Monitoring Charts)
The new option “Time Base” within the **Manual scale t-Axis** respective **Manual scale Renderer** dialogs of Monitoring Charts can be used in order to configure the time base (= time zone) of the data which is visualized by the Monitoring Chart.

FEATURE (Splitting of Log Files)
In order to avoid endless growing of log files, the new global options “Maximum Log File Size” and “Maximum Log File Time” can be used in order to configure the maximal allowed size and time of a log file. In case either the maximal allowed size or the maximal allowed time is exceeded, the log file is closed and a new log file is started.

FEATURE (Support of Frequency Markers for the Analysis of Order Spectrums)
The **MTC yn T001** now allows to use the complete functionality of frequency markers not only for frequency spectrums but also for order spectrums.

FEATURE (“Go to Parameter” Context Menu Item within the AME Standard T001)
In case an input argument of an Analyzing/User Function or any other setting of an Analyzing Model has been added as parameter of the Analyzing Model, the “Go to Parameter” context menu item can be called in order to highlight the entry of the “Provided Parameters” table which belongs to this input argument/setting.

FEATURE ("Go to Input Interface" Context Menu Item within the UFE Standard T001)
In case an input argument of an Analyzing/User Function has been added as input interface of the User Function, the "Go to Input Interface" context menu item can be called in order to highlight the entry of the "Provided Input Interfaces" table which belongs to this input argument.

FEATURE ("Go to Output Interface" Context Menu Item within the UFE Standard T001)
In case an output argument of an Analyzing/User Function has been added as output interface of the User Function, the "Go to Output Interface" context menu item can be called in order to highlight the entry of the "Provided Output Interfaces" table which belongs to this output argument.

FEATURE (Additional Analyzing Function TestEntryFromFile())
The new Analyzing Function TestEntryFromFile() can be used in order to check whether some entry (= a value or a string) is present within a .ini file.

FEATURE (Additional Analyzing Function GetCalculationTime())
The new Analyzing Function GetCalculationTime() can be used in order to determine the timestamp which is being processed by the current calculation cycle.

FEATURE (GetStartTime() also accepts Strings and Variables as Data Name)
In addition to the offline data identifier (e.g. $'DataName'), also a string (e.g. "DataName") or a variable (e.g. DataName) can be passed to the Analyzing Function GetStartTime() now.

FEATURE (GetStopTime() also accepts Strings and Variables as Data Name)
In addition to the offline data identifier (e.g. $'DataName'), also a string (e.g. "DataName") or a variable (e.g. DataName) can be passed to the Analyzing Function GetStopTime() now.

FEATURE (GetNumberOfValues() also accepts Strings and Variables as Data Name)
In addition to the offline data identifier (e.g. $'DataName'), also a string (e.g. "DataName") or a variable (e.g. DataName) can be passed to the Analyzing Function GetNumberOfValues() now.

FEATURE (Configurable Output Time Base for Analyzing Models and Analyzing Scripts)
The "Output Time Base" of Analyzing Models and Analyzing Script can be configured now. This setting allows to choose the time base (= time zone) of the offline data which is created by each Analyzing Model/Analyzing Script.

FEATURE ("Go to Parameter" Context Menu Item within the AME Standard T001)
All places which support the "Add Parameter" and "Remove Parameter" context menu items now also support the "Go to Parameter" context menu item, which allows to highlight the according parameter within the "Provided Parameters" table.

FEATURE ("Go to Input/Output Interface" Context Menu Item within the UFE Standard T001)
All places which support the "Add Input Interface" and "Remove Input Interface" context menu items now also support the "Go to Input Interface" context menu item, which allows to highlight the according input interface within the "Provided Input Interfaces" table. In addition, all places which support the "Add Output Interface" and "Remove Output Interface" context menu items now also support the "Go to Output Interface" context menu item, which allows to highlight the according output interface within the "Provided Output Interfaces" table.

FEATURE (Additional Analyzing Function CreateCF())
The new Analyzing Function CreateCF() can be used in order to create a copy of an existing Configuration File without changing of the default values of the parameters which are provided by the to-be-copied Configuration File.

FEATURE (Additional Analyzing Function CreateCFEx())
The new Analyzing Function CreateCFEx() can be used in order to create a new Configuration File out of an already existing Configuration File. The parameters which are passed to CreateCFEx() are forwarded to the new Configuration File as default values of its provided parameters.

FEATURE (Support of Frequency Markers also for Order Spectrums)
Frequency markers can be turned on also within a MTC yn T001 which contains an order spectrum.

FEATURE (Opening of Monitoring Views in full Screen Mode)
In case the /openMVF command line argument in order to open a Monitoring View, the additional /fullscreen command line argument can be passed in order to open the specified Monitoring View in full screen mode.

FEATURE (Additional Item "Configuration File Control" for the MTC Mimic Board T001)
The additional item type "Configuration File Control" can be used within the **MTC Mimic Board T001** in order to show the current status of a Configuration File and in order to start or stop the Configuration File.

FEATURE (Update Mechanism for the Installation of Hotfixes)
Future hotfixes come with an Update.exe executable which automatically determines the current installation folder and which copies all of the binaries which are relevant for one or multiple hotfixes.

FEATURE (Manual Trigger for Monitoring Views)
Monitoring Views now can be configured so that they create a report at the moment when they are started. After the report has been created, the Monitoring View stops automatically.

FEATURE (Parameters for Device Profiles)
All Device Profile Editors now allow to configure data names and other parameters as parameters of the Device Profile. Such a Device Profile with parameters can be started via the Analyzing Function StartEx() in order to pass the desired parameters to it or it can be used by the Analyzing Function CreateCFEx() in order to prepare a new Device Profile with proper default parameters.

FEATURE (Parameters for Monitoring Views)
The **MVE Standard T001** now allows to configure data names and other parameters as parameters of the Monitoring View. Such a Monitoring View with parameters can be started via the Analyzing Function StartEx() in order to pass the desired parameters to it or it can be used by the Analyzing Function CreateCFEx() in order to prepare a new Monitoring View with proper default parameters.

FEATURE (Parameters for Storage Profiles)
The **SPE Binary T001** now allows to configure data names and other parameters as parameters of the Storage Profile. Such a Storage Profile with parameters can be started via the Analyzing Function StartEx() in order to pass the desired parameters to it or it can be used by the Analyzing Function CreateCFEx() in order to prepare a new Storage Profile with proper default parameters.

FEATURE (Shifting of the Toolbar of Monitoring Charts)
In case the currently available width of a Monitoring Chart is so small that not all of the to-be-displayed toolbar buttons fit into the available width, the toolbar can be shifted left and right via the right mouse button.

FEATURE (Takeover of the Time Base during the Conversion of a Monitoring Chart)
In case a Monitoring Chart of one type (e.g. MTC yt T001 or MTC yn T001) is converted into another type (e.g. **MTC yx T001** or **MTC ynt T001**), the time base from the source Monitoring Chart is taken over automatically as time base of the destination Monitoring Chart.

FEATURE (Warning about skipped State Changes from the Analyzing Function MonCF())
In case the Analyzing Function MonCF() is called too slowly, it may not be able to report each of the requested state changes. When this situation is detected, an according warning is added to the system log.

FEATURE (Improved Undo and Redo within the Analyzing System)
The **AME Standard T001**, **ASE Standard T001** and **UFE Standard T001** now allow to undo and to redo each operation which is performed within any of their editable cells.

CHANGE (Increased maximal Number of Parameters which can be passed to StartEx())
The number of parameters which can be passed to the Analyzing Function StartEx() has been increased from 64 to 128 parameters.

CHANGE (Additional moving of Frequency Markers)
The harmonics of frequency markers and all value-based frequency markers can be moved now like it already was possible to move the Main Frequency Marker.

CHANGE (Output Data of simulated IFN VIB-ACC Devices)
Each channel of a simulated IFN VIB-ACC now outputs a kind of noisy sine.

CHANGE (Reusing of an already existing ODL Standard T001)
In case the “Load Offline Data” context menu item is chosen from the **MDS Explorer** or **STS Explorer** and there is an **ODL Standard T001** opened already, the already present **ODL Standard T001** is brought to the front and no new **ODL Standard T001** is opened.

CHANGE (Default Time Base within the “Monitoring View Parameters” Table)
The default time base of the “Monitoring View Parameters” table of the **MVE Standard T001** has been changed to “Use the local Time of the Offline Data”.

CHANGE (New “X-Tools Server Status” Dialog)
The **X-Tools Server Status** dialog of the ***X-Tools Tray*** has been changed so that it displays the available information in a more structured way now.

CHANGE (New Position of the “Provided Parameters” Table within the AME Standard T001)
The “Provided Parameters” table within the **AME Standard T001** has been moved upwards. This was done because several other editors start to provide a “Provided Parameters” table and all of them place this table at the same position now.

CHANGE (New “PathType” Values for the Analyzing Function ShowPath())
The meaning of the already known values for the “PathType” input argument has changed so that “Absolute

Path" and "Symbolic Path" return only the path (without the file name) now. In case also the file name is required, the new values "Absolute Path + File Name" and "Symbolic Path + File Name" can be used.

CHANGE (Improved routing of Links within Analyzing Models and User Functions)
The automatic routing of links has been improved within the **AME Standard T001** and **UFE Standard T001**. In addition, the context menu items "Reroute Links automatically" and "Reroute Link automatically" can be used and it also is possible now to move single segments of a link manually.

CHANGE (Faster stopping of Storage Profiles)
In case a Storage Profile is stopped through the user, it always is stopped within not more than 3 seconds.

CHANGE (Moving to V 1.4.0 of the OPC UA C++ SDK)
X-Tools has been updated in order to use the current version of the OPC UA C++ SDK (= V 1.4.0).

CHANGE (More tolerant reading of .csv Files with Offline Data)
The check of the syntax of to-be-read .csv files has been modified so that also several cases of too little and/or too many semicolons do not keep ***X-Tools*** from importing of the contained offline data values.

BUGFIX ("Set as Standard" did not work for the Time Base of Monitoring Charts)
Pressing of the "Set as Standard" button within the **Chart Options** dialog of a Monitoring Chart did not work for the configured "Time Base" value. Instead of the set value, each new Monitoring Chart was created with a value of "Default".

BUGFIX (Missing suspend of an Analyzing Script whose Input Data gets removed)
Under certain conditions an Analyzing Script whose input data got removed did not suspend. Instead, the Analyzing Script started to create hundreds of log entries about (wrong) resume attempts which instantly ended in another suspend.

BUGFIX (Possibly wrong Values within the MTC ynt T001)
The MTC ynt T001 could display wrong information about amplitudes with a value of 0.

BUGFIX (Possible Time Shift between the Values from two Devices with the same Time Domain)
In case two (or more) socket devices have shared the same time domain, the calculated timestamps could differ by a static offset even in case both devices delivered identical relative timestamps.

BUGFIX (Wrong Scaling and/or Unit within the MTC yn T001)
In case a frequency spectrum with maximal frequencies of several kHz was dropped so that a new MTC yn T001 was created, the value and unit which were displayed at the very right of the x-axis could be wrong.

BUGFIX (Possible Stack Overflow within Analyzing Scripts because of implicit Scalar Data Outputs)
In case an implicit scalar data output like s'Test' = 1; was used within a sequential Analyzing Script, a stack overflow could occur after about 100 calls to this output.

BUGFIX (Wrong initial Value from the Analyzing Function H2D())
The Analyzing Function H2D() could output a value at the moment of its first call after the start of the Analyzing Model/Analyzing Script. This was wrong, because at this moment the Analyzing Function could not have collected the necessary input data.

BUGFIX (The Analyzing Function OR() did not support Links to non-Boolean Output Arguments)
It was not possible to connect the In0 … In7 inputs of the Analyzing Function OR() to output arguments of non-Boolean types.

BUGFIX (Link Boxes within the MTC Mimic Board T001 did not support to enter a \ manually)
It was not possible to enter a \ (Backslash) manually into the **Edit Link Box** dialog of the MTC Mimic Board T001.

BUGFIX (Passing of Parameters to X-Tools via the URI Scheme could open another X-Tools Client)
Under certain circumstances, passing of parameters to ***X-Tools*** via the Firefox web browser could open another ***X-Tools Client*** instead of reusing of the already present ***X-Tools Client***.

BUGFIX (Possible Crash during the renaming of an Offline Data via the MDS Explorer)
In case an offline data was renamed within the **MDS Explorer** at the moment when it was removed, the ***X-Tools Client*** could end up in a crash.

BUGFIX (Possible Crash in case of Access to Data which were already deleted from the MDS Explorer)
In case the context menu of a data from the **MDS Explorer** was opened and afterwards the data got removed from the **MDS Explorer**, the ***X-Tools Client*** could end up in a crash at the moment when any of the items of the still open context menu was chosen.

BUGFIX (H1D() did not set the Status of its Output0 Argument properly)
The value of the output argument "OutReady" and the status of the output argument "Output0" of the Analyzing

Function H1D() did not match in same cases. As a result, “Output0” could report a value to be present when this was not the case.

BUGFIX (H2D() did not set the Status of its Output0 Argument properly)
The value of the output argument “OutReady” and the status of the output argument “Output0” of the Analyzing Function H2D() did not match in same cases. As a result, “Output0” could report a value to be present when this was not the case.

BUGFIX (SetStts() did not work within Analyzing Scripts)
It was not possible to use the Analyzing Function SetStts() within Analyzing Scripts.

BUGFIX (Missing Update of Scalar Data Values within the MTC Mimic Board T001)
In some cases the MTC Mimic Board T001 did not update the displayed value of a scalar Data which was updated by an Analyzing Script.

BUGFIX (GetStatus() did not accept Input Data of Type “String”)
The Analyzing Function GetStatus() did not accept input data of type “String”.

BUGFIX (Possible Crash during the stop of an Interface Profile for the “Serial Port T001” Interface)
In certain situations the stopping of an Interface Profile for the “Serial Port T001” interface could cause an internal deadlock and a following crash of the ***X-Tools Server***.

BUGFIX (Possible Crash after opening of a Monitoring View)
Opening of a Monitoring View under low memory conditions could cause a crash of the ***X-Tools Client***.

BUGFIX (Unnecessary Initializations of internal Buffers could increase the Calculation Time)
Under certain circumstances the internal buffers which are used during the processing of Analyzing Models and Analyzing Scripts could be re-initialized too often. In worst cases, this could cause a suspend of the Analyzing Model/Analyzing Script because it was not able to perform all calculations within the available amount of time.

BUGFIX (Too high CPU Usage of Analyzing Models with very slow Cycle Times)
The ***X-Tools Server*** could cause a high CPU usage during the start of an Analyzing Model. The high CPU usage could be observed between the start of the Analyzing Model and the first calculated cycle of the Analyzing Model.

BUGFIX (Possible Corruption of a User Function when it is converted from an Analyzing Model)
In case an Analyzing Model with provided parameters has been converted into a User Function, the User Function could be corrupted so that it was not possible any more to open or to use it afterwards.

BUGFIX (Possible reading of too old Values from the Ring Buffer of an online Data)
In case the ring buffer of an online data was filled up once and afterwards somebody (e.g. the XSI.dll) started to read data from this ring buffer, the returned data values could be from the beginning of the available time interval instead of from the requested start time.

BUGFIX (Possible Hang of the X-Tools Server because of an interrupted Data Streaming)
In case an XSI client has disconnected from the ***X-Tools Server*** while the data streaming was still in progress, the ***X-Tools Server*** could end up in a hang and a following crash.

BUGFIX (An Analyzing Model may not resume at the Moment when its Input Data appears)
Under certain conditions, an internal race condition could keep an Analyzing Model from resuming even after all of its necessary input data became available.

BUGFIX (Too many Log Entries from MonCF() in case it was used in Action based Operating Modes)
In case the Analyzing Function MonCF() was used in an action based operating mode, a single change of the state of the to-be-monitored Configuration File could cause continuous, never-ending log entries.

BUGFIX (Possibly missing Data from OPC UA Servers)
In case multiple data were received from an OPC UA server and in case some of these data did not change ever, the ***X-Tools Server*** could run into timestamp errors and as a result it was not possible to use (e.g. visualize) such a data.

BUGFIX (No writing of Data to an OPC UA Server)
In case a Device Profile for an OPC UA server was configured to write data values to the OPC UA server, it could happen that ***X-Tools*** did not pass any value to the OPC UA server after the start of the Device Profile.

BUGFIX (Too early Status Change to “stopped” from Storage Profiles)
A Storage Profile could reach the status “stopped” before it has finished to write all of its offline data values to the disk. As a result, a following attempt to load the latest offline data could fail. After the fix, a Storage Profile reaches “stopped” not before all of its offline data are ready at the disk.

BUGFIX (Possible Error during the Restart of a Storage Profile)
The restart of a Storage Profile could fail in case the stop of the Storage Profile took longer than a few seconds.

BUGFIX (Possible Stop of a Storage Profile through the Resource Manager of X-Tools)
In case of low memory conditions, the resource manager of ***X-Tools*** can suspend a Storage Profile. In case the stopping of the Storage Profile took longer than a few seconds during the next resume attempt, the Storage Profile could end up suspended forever.

BUGFIX (Possible increased Memory Usage through the Analyzing Function MonCF())
In case the Analyzing Function MonCF() was called less often than there were changes of the state of Configuration Files within the system, it could consume more and more memory because the Analyzing Function has collected all state changes and could deliver only one per call.

BUGFIX (The Analyzing Function Sleep() could delay the suspending of an Analyzing Script)
In case an Analyzing Script was processing the Analyzing Function Sleep() at the moment when it should suspend, it could end up in the status “suspending” until the specified amount of time had been slept. In applications with very log sleep intervals this could cause a noticeable hang of the Analyzing Script.

BUGFIX (Bad Navigation through the “Provided Parameters” Table of the AME Standard T001)
In editing mode, the “Provided Parameters” table of the **AME Standard T001** did not support the cursor keys for the navigation through its cells.

BUGFIX (An Analyzing Model/Analyzing Script which processes Offline and Scalar Data may never stop)
In case an Analyzing Model or Analyzing Script was configured to use both Offline Data and Scalar Data as input and in case the calculation mode was configured to action based, the Analyzing Model or Analyzing Script may never have reached the status stopped. Instead, it remained in status “started” and it did nothing after it completed to process the available data probes.

BUGFIX (Possible Crash within the Analyzing Function GetVFrmSD())
The Analyzing Function GetVFrmSD() could end up in a crash in case it attempted to read from a data too early (while the data was created) or too late (while the data was terminated).

BUGFIX (Possible Visualization of Values which do not match the currently shown Point in Time)
In case two offline data from different time intervals were dropped into a Monitoring Chart, the Monitoring Chart could show values from both offline data for one point in time.

BUGFIX (Possible Change of the currently shown Point in Time of a paused Monitoring Chart)
In case the visualization of a Monitoring Chart was paused and another online data was dropped into the Monitoring Chart afterwards, the shown point in time could be changed.

BUGFIX (Possible processing of a Random Value through the Analyzing Function InAAF())
In case the Analyzing Function InAAF() was processing online data, it could read one wrong input value from the ring buffer of the online data each time when it has passed the end (= the highest index) of the ring buffer.

2.11 X-Tools V 04.02 IR1 -> X-Tools V 04.02

The following changes have been introduced in ***X-Tools*** V 04.02:

FEATURE (Graphical editing of Spectrum Envelopes)
The **MTC yn T001** can be used now in order to create a spectrum envelope for a given reference spectrum. Both frequency spectrum envelopes and order spectrum envelopes are supported. The creation and modification of spectrum envelopes is fully interactive can be be done both by mouse and via configuration dialogs.

FEATURE (Viewing of Violations of Spectrum Envelopes)
The **MTC yn T001** can be used now in order to show all violations of a spectrum envelope through the currently visualized spectrum.

FEATURE (Additional Analyzing Function GetAlrmBnd())
The new Analyzing Function GetAlrmBnd() can be used in order to receive information about the properties (center, width, amplitudes, …) of a certain alarm band of a spectrum envelope.

FEATURE (Additional Analyzing Function MonSpmEnv2())
The new Analyzing Function MonSpmEnv2() can be used in order to monitor whether the specified (frequency or order) spectrum violates the specified (frequency or order) spectrum envelope.

FEATURE (Additional Analyzing Function MonAmpl())
The new Analyzing Function MonAmpl() can be used in order to monitor whether the specified (frequency or order) spectrum violates the specified alarm band. This Analyzing Function also monitors the amplitude trend for the specified alarm band.

FEATURE (Additional Analyzing Function MonAmpls())
The new Analyzing Function MonAmpls() can be used in order to monitor all amplitude trends for the specified (frequency or order) spectrum and (frequency or order) spectrum envelope.

FEATURE (Additional Analyzing Function InSpmEnv())
The new Analyzing Function InSpmEnv() can be used in order to read (frequency or order) spectrum envelopes from the system.

FEATURE (Additional Analyzing Function OutSpmEnv())
The new Analyzing Function OutSpmEnv() can be used in order to write (frequency or order) spectrum envelopes to the system.

FEATURE (Additional Analyzing Function GetStrFrmSD())
The additional Analyzing Function GetStrFrmSD() can be used in order to extract a single string out of a time series of data.

FEATURE (Additional Analyzing Function GetLctnPath())
The additional Analyzing Function GetLctnPath() can be used in order to determine the absolute path to an existing location.

FEATURE (Additional Analyzing Function TLC2D())
The new Analyzing Function TLC2D() can be used in order to calculate the time at level counting for two input data.

FEATURE (Startup of X-Tools with Startup Configuration Files)
The new global option “Startup Type” of the ***X-Tools Server*** allows to choose whether the ***X-Tools Server*** shall automatically restart all Configuration Files which were running during its shutdown or whether a certain Analyzing Script shall be used in order to startup all Configuration Files in a defined order.

FEATURE (Adding of Support for SIMATIC S7-12xx and SIMATIC S7-15xx CPUs)
SIMATIC S7-12xx and SIMATIC S7-15xx CPUs can be connected via the “ION SIMATIC S7-1200” and “ION SIMATIC S7-1500”. The communication with both devices takes place over TCP/IP and the “Socket T001” interface of ***X-Tools***.

FEATURE (Parameters for Analyzing Scripts)
The **ASE Standard T001** now allows to configure input arguments of Analyzing/User Functions as parameters of the parent Analyzing Script. Such an Analyzing Script with parameters can be started via the Analyzing Function StartEx() in order to pass the desired parameters to it.

FEATURE (Visualization of Frequency Spectrums as Order Spectrums within the MTC yn T001)
The **MTC yn T001** now allows to show the amplitudes of a frequency spectrum as order spectrum. Therefore, the x-axis can be switched from “Linear” to “Order” and the frequency divider value can be provided as user-entered number or as (speed) data.

FEATURE (Variable Size of Toolbar Buttons)
The global option “Size of Toolbar Buttons” provides an additional option for choosing of a medium (150 %) toolbar button size.

FEATURE (Adding of the “Average” Column to the “Measurement Cursors” Table of the MTC yt T001)
The “Average” column of the **MTC yt T001** shows the average value of each data for the period of time between the current measurement cursors.

FEATURE (Improved Customization within all Cursor/Marker Tables of Monitoring Charts)
The cursor/marker tables of all Monitoring Charts now allow to move and to re-arrange the present columns. In addition, all columns which display a time allow to configure the format of the displayed times via the context menu of their column caption.

FEATURE (Adding of the “Type” Input Argument to the Analyzing Function GetVFrmSD())
The “Type” input argument can be used in order to define whether the data which is specified via the “Name” input argument is an online data or an offline data.

FEATURE (Adding of the “Type” Input Argument to the Analyzing Function IsDataPrsnt())
The “Type” input argument can be used in order to define whether the data which is specified via the “Name” input argument is an online data, offline data or a scalar data.

FEATURE (Update and parallel Installation via the Setup)
When the setup of ***X-Tools*** is started and there is an older version of ***X-Tools*** installed already, the setup allows to choose whether the existing installation shall be updated or whether a new, parallel installation shall be created.

FEATURE (Increased maximal Number of Points)
In addition to the so-far maximum of 65536 values, also input buffers with 131072 and 262144 values are supported by the Analyzing Functions FFT(), AppBhann(), AppBlack(), AppBlett(), AppHamm(), AppHann(), AvgSpm(), Cpstr() and EnvHlb() from now on.

FEATURE (Import of iba .dat Files)
iba users who have ibaFilesLite.dll installed at their computer can use ***X-Tools*** in order to import the data from iba .dat files.

FEATURE (Adding of missing Keyboard Shortcuts)
The standard keyboard shortcuts like <Ctrl> + <N>, <Ctrl> + <S>, <Ctrl> + <O>, <Ctrl> + <F4>, <Ctrl> + <P>, <Ctrl> + <Y> and <Ctrl> + <Z> have been added to all editors and to all explorer trees.

FEATURE (Improved switching between the MTC yn T001 and MTC ynt T001)
Whenever a **MTC yn T001** is switched into a **MTC ynt T001**, the resulting **MTC ynt T001** remembers all settings from the **MTC yn T001**. As a result, the **MTC ynt T001** can be switched back into a **MTC yn T001** later and the resulting **MTC yn T001** is identical again to the original **MTC yn T001**. Consequently, the **MTC yn T001** also remembers all settings from the **MTC ynt T001**.

CHANGE (Removing of Support for Time Slice based Operating Modes from the Analyzing Function GetVFrmSD())
The Analyzing Function GetVFrmSD() does not support time slice based operating modes any more.

CHANGE (Modified reading of Input Data with Data Name Prefixes)
In case a data name prefix is defined within the Analyzing Model/Analyzing Script, this data name prefix is applied in all cases where an input data is accessed.

CHANGE (Improved Handling and Notifications about incompatible Executables)
In case an incompatible executable is detected during the startup of ***X-Tools***, an according log entry is created and the affected executable is not loaded. ***X-Tools*** terminates automatically in case the incompatible executable is a mandatory one and ***X-Tools*** starts up with the remaining functionality in case the incompatible executable is an (optional) plug-in.

CHANGE (Analyzing Function GetVFrmSD() can not run in Time Slice based Operating Modes)
The Analyzing Function GetVFrmSD() does not support the time slice based operating modes any more. As a result, it also is not possible any more to use this Analyzing Function within Analyzing Models.

CHANGE (Changing of the Category of MonSpmEnv())
The Analyzing Function MonSpmEnv() has been moved from the category “Envelopes” to the category “Spectral”.

CHANGE (Improved Column Widths within the Tables of the SPE Binary T001)
The automatic update of the width of the tables within the **SPE Binary T001** has been improved so that the values from all present columns are visible whenever it is possible. This is relevant epecially when there are some tables whose width is bigger than the current width of the **SPE Binary T001**.

CHANGE (Speed Optimizations for the processing of Analyzing Scripts)
The processing of large amounts of memory through Analyzing Scripts has been improved so that such Analyzing Scripts can run up to 50 % faster. However, for most operations Analyzing Models still have a significant speed advantage against Analyzing Scripts.

CHANGE (Implicit Outputs of scalar Data do not chang the Properties of the scalar Data anymore)
In case a scalar data is present already and its value shall be updated by an Analyzing Script with an instruction like s'Name' = 1;, this operation updates the value of the existing scalar data but it does not change any of its other properties (like precision, unit, …).

CHANGE (Averaging of the Values of the Main Frequency Marker)
In case the Main Frequency Marker of the **MTC yn T001** is linked to a data, the average value of this data over the period of time which belongs to the currently visualized spectrum is used as value for the Main Frequency Marker.

CHANGE (New Directory Structure for the X-Tools Service)
All files of the ***X-Tools Service*** are put into the new directory "Service" which is found parallel to the "Client" and "Server" directories of the ***X-Tools*** installation.

CHANGE (Running of the X-Tools Server without Windows Administrator Rights)
The ***X-Tools Server*** can be started also without Windows administrator rights, because these rights are not needed for most of its operations. In case there are Windows administrator rights necessary for an operation (like for changes to the ***X-Tools Service***), according messages and log entries are provided and the ***X-Tools Server*** must be started with Windows administrator rights in order to become able to perform the operation.

CHANGE (Signature for Executables)
All executables (*.exe) of ***X-Tools*** are signed now and report "Siemens AG" as verified publisher.

CHANGE (Moving to the ALM V 5.3.1)
The Automation License Manager (ALM) V 5.3.1 is used by ***X-Tools*** from now on.

CHANGE (More tolerant Timeout within the DPE OPC UA T001)
The **DPE OPC UA T001** reads the to-be-expanded nodes in smaller potions now. This allows to read also bigger OPC UA address spaces.

CHANGE (New ALM Licenses)
The ALM licenses from V 04.01 can not be used for V 04.02 anymore. Instead, a new or an upgrade license must be used in order to run V 04.02.

CHANGE (Modified Selection of Points through the Analyzing Function Extrapolate())
The Analyzing Function Extrapolate() uses a different strategy for the selection of points of the input data which are used for the calculation of the polynom. The target of the new strategy is to achieve that the extrapolated data goes exactly through the start and the stop values of the input data.

BUGFIX (Wrong loading of Offline Data Files with single Probes)
In case multiple offline data files were appended one after the other and each of them contained exactly one probe (= one pair of timestamp + value), the appending could fail silently and no additional values were added to the existing offline data.

BUGFIX (Applying of the Security Updates for OpenSSL)
The used components of OpenSSL have been updated to V 1.0.1h. This hotfix includes updates for the following third-party DLLs: libeay32.dll, libxml2.dll and uastack.dll.

BUGFIX (Missing Check Mark within the Context Menu of the MTC yn T001)
In case the sliders were hidden, none of the sub-items of the "Show Sliders" context menu had a check mark. Now, the check mark is displayed properly in front of the "No" sub-item.

BUGFIX (Missing support for Decimal32 through the Analyzing Function OutSpm())
The Analyzing Function OutSpm() output its data with a precision of Decimal64 always, even in case another Precision was configured.

BUGFIX (Missing support for Decimal32 through the Analyzing Function InSpm())
The Analyzing Function InSpm() was not able to handle input data with a precision different to Decimal64.

BUGFIX (Unwanted re-appearing of the Configuration Area)
In case the Configuration Area within the **AME Standard T001**, **UFE Standard T001** and/or **MVE Standard T001** was hidden, it could re-appear automatically in different situations even though it still was configured to be hidden.

BUGFIX (Suspend through the Analyzing Function GetVFrmSD() in Combination with Online Data)
The Analyzing Function GetVFrmSD() suspended its parent Analyzing Model/Analyzing Script directly after the start in case it was used to get the value from an online data.

BUGFIX (Suspend through the Analyzing Function OutOrbit() in case of unsupported Precisions)
In case the Analyzing Function OutOrbit() was configured with a precision that it did not support, the Analyzing Function suspended its parent Analyzing Model/Analyzing Script. Instead, an according warning log entry is created now and the Analyzing Function uses the closest supported precision automatically.

BUGFIX (Possible Crash in case the EnOutSpm Input Argument was false)
The ***X-Tools Server*** could end up with a crash in case the Analyzing Function MonAlrmSpm() was called with a value of “false” for its input argument “EnOutSpm”.

BUGFIX (Possible Deadlock through started Monitoring Views)
A started Monitoring View could end up in a deadlock which caused that client connection slots were not released anymore. In addition, this deadlock also could cause a constant rising of the memory usage through the ***X-Tools Server***.

BUGFIX (Improved handling of low Ring Buffer Sizes through Storage Profiles)
In case a Storage Profile had to store an online data whose ring buffer was very small (= an online data which contained less than 5 seconds of data within its ring buffer), the Storage Profile may not have detected this error. As a result, it could show that it was running although it did not create any files or directories.

BUGFIX (Wrong resuming through the Analyzing Function FFT())
In case the Analyzing Function FFT() detected a wrong number of values within its input buffer, it suspended and resumed its parent Analyzing Model/Analyzing Script all the time. As it is unlikely that the number of values within the input buffer changes, the Analyzing Function suspends the parent Analyzing Model/Analyzing Script now and does not attempt to resume.

BUGFIX (Bad Log Entry from an Analyzing Model which received an invalid Data Name Prefix)
In case an Analyzing Model has been started with an invalid data name prefix (for input and/or output data), the log entry complained about the resulting data name instead of explaining that the data name prefix is invalid.

BUGFIX (Wrong Interpretation of textual Time Interval Formats through Analyzing Models)
In case the to-be-used time interval format was passed to an Analyzing Model as parameter, the Analyzing Model could interpret the provided time interval format wrongly.

BUGFIX (Disappearing Short Name within the Title Bar of Dialogs)
In case the title bar of a dialog was configured to show the short name, this setting could be forgotton after operations like saving of the edited file. In this situation, the long name of the dialog was displayed again although the check mark within the context menu still was in front of the “Short Name” entry.

BUGFIX (Bad handling of huge Numbers of Parameters within several Dialogs)
The behavior of the “Provided Parameters” table within several dialogs has been improved. For example, the height of this dialog has a defined maximum of ½ of its parent editor now and the maximal numbe rof parameters is checked properly.

BUGFIX (Forgotten Window Mode)
The currently chosen window mode (e.g. “Tabbed”) could be forgotten after closing and re-opening of a workspace window (like the “Main Management Workspace”).

BUGFIX (Small Signal Lights could not be moved within the MTC Mimic Board T001)
In some cases it was not possible to move a signal light with a width and height of 1 background grid interval.

BUGFIX (Wrong Indication of Errors within the DPE ION SIMATIC TDC T001)
The “Connector” column within the “Device Profile Data” table of the **DPE ION SIMATIC TDC T001** displayed all entries with red text, even in case the according entries were available within the currently known address book.

BUGFIX (Graphic Artefacts in Combination with the “Classic Mode” of Windows 7)
In case the hardware-accelerated DirectX grahics library was configured in X-Tools and the desktop of the used Windows 7 PC was configured to run in “Classic Mode”, grapic artefacts like a shadowed rectangle could be present within the Monitoring System.

BUGFIX (Lost Inputs within the AME Standard T001 and UFE Standard T001)
In case the value of an input argument of an ANF/USF was in editing mode and the left mouse button was clicked somewhere outside the edit box, the entered value was lost.

BUGFIX (Missing vertical Background Grid within the MTC yt T001)
In case of certain combinations of offline data and displayed time intervals, some of the vertical background grid lines and the according lables at the x-axis could be missing within the **MTC yt T001**.

BUGFIX (Double-Click onto Legend Entries might not work in Combination with manual Widths)
In case the width of a Monitoring View was defined manually and the horizontal scroll bar was not at its very left position, it might have been impossible to open the **Data Style** dialog via a double-click onto a legend entry.

BUGFIX (More tolerant reading of .csv Files with offline Data)
In case a to-be-loaded .csv file with offline data contained too little semicolons within its data rows, the loaded offline data could end up with only 0 probes.

BUGFIX (Wrong default Full Name and Short Name within the AME Standard T001)
In case a configurable input argument (like “In0” of the Analzing Function Add()) was added as parameter of the Analyzing Model, the created default full and short names were like “Input” and “In” instead of “Input0” and “In0”.

BUGFIX (Checking of too many Events through the Input Analyzing Functions)
Each input Analyzing Function did check all of the events of its input data at each call of the Analyzing Function. Now, only the new events are checked when the Analyzing Function is called.

BUGFIX (Action based Analyzing Models/Analyzing Scripts are unable to work with different Time Domains)
In case an Analyzing Model/Analyzing Script with a calculation mode of “Action based” was configured to take an offline data with absolute timestamps as input and to output an offline data with relative timestamps (or vice versa), the Analyzing Model/Analyzing Script suspended directly at its start.

BUGFIX (It was not possible to change the Order Window Tabs)
In case the window mode was “Tabbed”, it was not able to change the order of the present tabs.

BUGFIX (Improved Detection of IEEE1394 Devices)
In some cases it was possible that ***X-Tools*** did not recognize all of the IEEE1394 devices which were present within the Device Manager of Windows.

BUGFIX (Passing of Data Identifiers to the Analyzing Function OutSclr())
The Analyzing Function OutSclr() did not accept a data identifier like ~’SomeData’ as input argument value.

BUGFIX (Unwanted Change of the Position of the Measurement Cursors within the MTC yt T001)
The position of the present measurement cursors could be changed at wrong moments, for example after a zooming operation or after the **MDS Explorer** has been shown/hidden. In such situations also the displayed minimal, maximal and average values within the “Measurement Cursors” table could be wrong or “N/A”.

BUGFIX (Exporting of Data did not work for Categories of the MDS Explorer)
In case “Export” or “Advanced Export…” was chosen from the context menu of an offline data category of the **MDS Explorer**, the **Export Progress** dialog got displayed but nothing else happened.

BUGFIX (Missing Hotfix Information about “DME EIM OPC UA Server T001.dll”)
The ***X-Tools Server*** did not create a log entry in case a hotfixed version of “DME EIM OPC UA Server T001.dll” was installed.

BUGFIX (Wrong Time Base within the Tooltip of Monitoring Chart Sliders)
The sliders at the top of **Monitoring Charts** did not use their current time base for the times which were displayed within their tooltips.

BUGFIX (Forgotten Display Time Update Setting within the MTC yx T001)
The **MTC yx T001** did not remember the configured settings for “Update Display Time after Open” and “Update Display Time after Action”.

BUGFIX (Delayed Takeover of the Scaling Interval Settings within the MTC yt T001)
The **MTC yt T001** did not take over changed values of the “Auto set Scaling Interval” and “Scaling Interval” settings after “OK” or “Apply” had been pressed within the **Manual scale t-Axis** dialog. Instead, it was necessary to move the t-axis after such a changed value in order to take over the new setting.

BUGFIX (Unwanted Mixup of offline Data with absolute and relative Timestamps)
The **MTC yt T001** was able to show the timestamps and values of offline data with relative timestamps even in case the t-axis was configured to show offline data with absolute timestamps. As a result, the displayed timestamps were wrong.

BUGFIX (Missing Visualization of Values from Data with only 1 Probe)
In case some data with only one existing probe was put into the **MTC yt T001**, there was a chance that no value of this data was displayed by the **MTC yt T001**.

BUGFIX (Wrong initial Time Interval within the MTC yx T001)
In case a **MTC yt T001** was converted into a **MTC yx T001**, the slider of the **MTC yx T001** could show a time interval (e.g. 15 seconds) which was different to the time interval that was used for the visualization of the curve (e.g. 10 seconds).

BUGFIX (Unused Postfix within the Legend of Monitoring Charts)
In case of Monitoring Views which have been created by older versions of ***X-Tools*** there could be a kind of postfix displayed within the legend of each **Monitoring Chart**.

BUGFIX (Too little Height of the "Provided Parameters" Table within the AME Standard T001)
The height of the "Provided Parameters" table within the **AME Standard T001** could become so small that only one or two rows were visible although there would have been enough height available for more rows.

BUGFIX (Wrong Capture Delay Value within the MVE Standard T001)
Every capture delay value which was entered within the **MVE Standard T001** was stored in seconds internally. During the next opening of the Monitoring View, the capture delay value in [seconds] was displayed and the configured capture delay format was not considered.

BUGFIX (Wrong Visualization within the MTC ynt T001)
In case the to-be-visualized data contained amplitudes with a value of 0, the visualization for these amplitudes could be wrong.

BUGFIX (Wrong Background Grid Interval within the MTC yt T001)
Under certain circumstances there could be vertical lines of the background grid of the **MTC yt T001** missing.

BUGFIX (Zoom in and Zoom out do not compensate each other)
In case a "zoom in" operation was performed within a **Monitoring Chart** and a "zoom out" operation was performed afterwards, the scaling was not the same as before the "zoom in" operation again.

BUGFIX (Missing Data Values within the MTC yt T001)
In case the **MTC yt T001** had to display big time intervals it could happen that the values within the last to-be-visualized pixel column were missing.

BUGFIX (Unwanted "Save Screenshot" Context Menu Item within Screenshots)
In case of some operating systems the "Save Screenshot" context menu item could be present within screenshots that had been created via the "Save Screenshot" context menu item of **Monitoring Charts**.

BUGFIX (Possible Crash of the X-Tools Server during its Termination)
A certain timing could cause a crash of the ***X-Tools Server*** during its termination.

BUGFIX (Possible Crash of the X-Tools Client after turning on of Advanced Cursors or Frequency Markers)
In case the Advanced Cursors or Frequency Markers of a **MTC yn T001** were turned on exactly at the moment when the currently displayed data disappeared, the ***X-Tools Client*** could end up in a crash.

BUGFIX (Wrong Background of Measurement Cursor Labels within the MTC yt T001)
The background of measurement cursor labels within the **MTC yt T001** could be displayed with a very dark color in case of Monitoring Views which were stored by older versions of ***X-Tools***.

BUGFIX (Avoiding of wrong stop Events within Offline Data Files)
In case a Storage Profile was configured to store multiple data and one or multiple of these online data were configured with a too small ring buffer, wrong stop events could land within all of the created offline data files.

BUGFIX (Improved loading of Offline Data Files which contain wrong stop Events)
In case a wrong stop event (= a stop event although there are valid data values afterwards) is detected during the loading of offline data files, this stop event is ignored and not added to the resulting offline data.

BUGFIX (Improved processing of the /fullscreen Command Line Parameter)
Depending to the current input focus, the /fullscreen command line parameter could be not working properly in some cases. As a result the ***X-Tools Client*** could appear also in non-fullscreen mode and/or it did not open the configured Monitoring Views.

BUGFIX (Big Background Images within the MTC Mimic Board T001 could be displayed wrongly)
In case the background image within a MTC Mimic Board T001 had a width of more than 1024 pixels, it could be displayed wrongly within automatic reports and when the "Graphics Library" was configured to "OpenGL 1.1 (no hardware acceleration)".

3 List of Abbreviations

Abbreviation	Description
AME	Analyzing Model Editor
ANF	Analyzing Function
ANS	Analyzing System
ANX	Analyzing System Explorer
ASE	Analyzing Script Editor
CTN	Control Node
DMS	Device Management System
DMX	Device Management System Explorer
DPE	Device Profile Editor
GOE	Global Options Editor
IFN	Interface Node
ION	I/O-Node, Input/Output-Node
IPE	Interface Profile Editor
LPE	Loading Profile Editor
MDS	Master Data System
MDX	Master Data System Explorer
MMS	Main Management System
MMX	Main Management System Explorer
MPE	Main Profile Editor
MTC	Monitoring Chart
MTS	Monitoring System
MTX	Monitoring System Explorer
MVE	Monitoring View Editor
ODL	Offline Data Loader
UAE	User Accounts Editor
SLV	System Log Viewer
SPE	Storage Profile Editor
STS	Storage System
STX	Storage System Explorer
UFE	User Function Editor
UPS	Uninterruptible Power Supply
USF	User Function
XTC	X-Tools Client
XTS	X-Tools Server

4 Contact Information

Should you have any questions concerning the software application, please refer to the Industry Sector Technical Support.

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Thank you for using one of the above mentioned contacts to ensure your inquiry is registered and can be processed.